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THE LINEN TRADE
of EUROPE

THE LINEN TRADE *of* EUROPE *during the* Spinning-Wheel Period : : :

John Horner

BELFAST
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To my Wife
and Sisters

PREFACE

This work was begun about fourteen years ago, for the purpose of describing the number of flax-spinning wheels, and other accessories connected therewith, which I had from time to time collected in various parts of Europe, and presented to the Belfast Municipal Museum, the Committee of which, seeing the advantage of displaying these primitive implements of a by-gone industry in the largest centre of modern flax-spinning and weaving, have given to them adequate house room. There being available considerable data referring to the linen-trade of Ireland during the wheel-spinning period, I was induced to expand the work into something like a history of that trade. This was a matter of fairly easy compilation, and, when completed, seemed to demand that something similar should be written about trade of the sister kingdoms and those continental countries where the linen industry had been carried on, and which were represented by wheels in the collection. Here I was confronted with difficulties innumerable owing to lack of information, and long and laborious search had to be undertaken before matter of anything like an authentic nature could be unearthed. Nobody better than I can appreciate the incompleteness of the work, especially with regard to some of those continental countries where the linen-trade flourished, but where, owing to various circumstances, records of its volume have not been preserved. Such as this record is I present it with some diffidence, yet believing that what it tells is worthy of acceptance, as I have carefully discarded any authorities which might appear vague or visionary. In dealing with matters of one, two, or three hundred years ago, now almost passed into forgotten history, it is impossible to avoid mistakes. In many of the authorities I have quoted some glaring mistakes occur, which, when detected, have been corrected; others may undoubtedly remain. As the greater portion of this work was written before the Great War began, and the whole is now completed before the Peace Terms affecting the readjustment of the map of Europe are settled, the various boundaries to many of the countries mentioned may be inaccurate when read in the light of the immediate future. Some of the spinning-wheels and accessories were kindly given me by friends, to whom I am much indebted, and I hereby tender them my hearty thanks.

J. H.

BELFAST.

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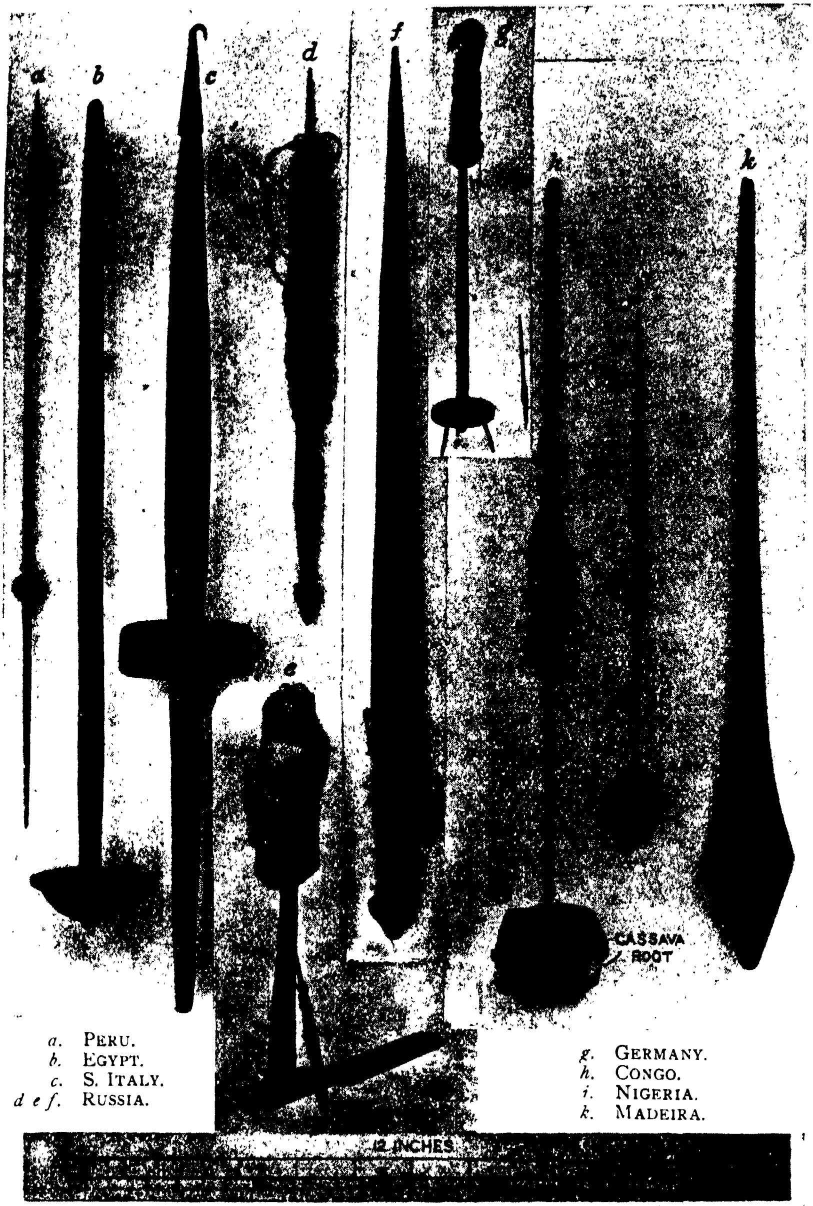
WOODEN SPINDLES AND WHORLS.



a. PERU.
b. EGYPT.
c. S. ITALY.
d e f. RUSSIA.

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h. CONGO.
i. NIGERIA.
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SCALE FOR ALL EXCEPT *e* AND *g*.

The Linen Trade *of* Europe

CHAPTER I.

Introductory

The simple spindle and distaff served from remote ages, and for many thousands of years, all the requirements of the spinning departments of the nations of the world, and persist, even to-day, not alone among uncultured tribes, but in the most advanced countries of Europe. The distaff, upon which the material to be spun was wound, was carried under the left arm, or placed in the belt or breast of the operator. The spindle, commonly of wood, was notched at the top to receive the end of the material. A weight on the spindle, called a whorl, made of stone, clay, or hard wood, gave the spindle when twirled a momentum. So long as the spindle revolved, the yarn twisted; when it ceased, the spun yarn was wound on the spindle, the last twisted portion placed in the notch, and the operation continued. It would appear natural that the revolving motion given to the spindle by means of the operator's fingers could be arrived at by mechanical means if the spindle were mounted in bearings and revolved by means of a band over a driving-wheel. The idea occurred to someone, and thus the first spinning-wheel was made. It was a simple evolution. The spindle had fastened to it a small pulley called in these countries a "whirl," derived from the "whorl" of the ancient spindle, from whence, no doubt, the word "wharve," used in modern spinning, is derived. The spindle bearings were fastened on a frame-work of wood, which also supported the bearings in which the wheel revolved, by means of the operator's hand. We here find the spindle of the ancients placed horizontally and revolved from the motion of the wheel, instead of being twirled between the fingers, or between the right hand and leg. When about a yard in length was spun, it was allowed to wind itself on the spindle, and the operation was repeated in a manner similar to that employed in the olden operation. It is not known definitely where this spinning-wheel originated; generally, and with some reason, it is supposed that India is its birth-place. Such wheels have been known there for long centuries past, and thousands of them are in operation to-day throughout our Indian Empire. The framework rests on the ground unsupported by legs (Fig. 1), and the spinner kneels or sits on the ground in oriental fashion. Cotton spinning and weaving are known to have existed in India for upwards of 3,000 years; they are mentioned by Herodotus. In his time it is more than probable that the simple spindle and distaff were the spinning mediums: these implements were, however, known at a much earlier date in Egypt, as is evidenced by mural paintings in the tombs at Thebes and in other places in Egypt, as well as by the actual spindles found there.

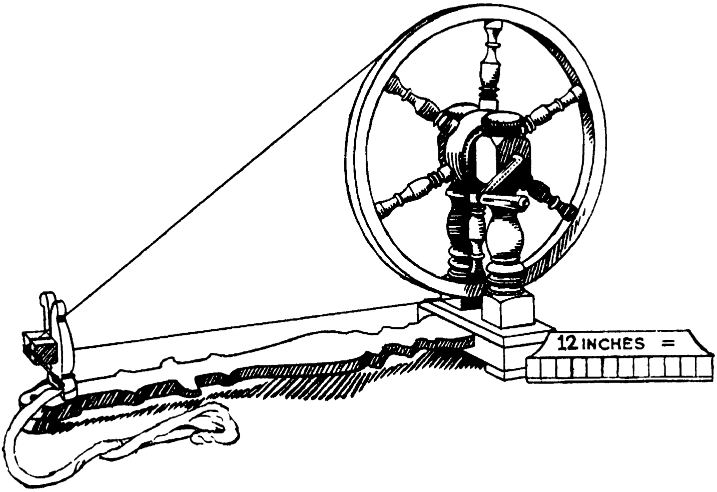


FIG. 1. INDIAN WHEEL.

But a spinning-wheel, distinct to Egypt, is unknown. The fineness of work produced by a Hindoo distaff spinner was simply marvellous. A single pound of cotton could be spun to a length of 250 miles by means of a slender wooden spindle, no thicker than a knitting needle, and weighted with a tiny pellet of clay for a whorl.

The yarn spun was so light as to be almost impalpable, and so fragile as to be unable to bear the weight of the light spindle: as a consequence, the latter was not permitted to fall to the ground after receiving the twist from the spinner's fingers, but was spun in the concave side of a shell, similar to that of the limpet, on the ground. The cloth from such yarns was woven on the rudest looms, and was called " Flowing water" and " Evening dew." The demand for such fine materials has some time since ceased, although the trade of hand-spinning and hand-weaving is still very considerable. No less than two-fifths of the cotton cloth used in India is still produced on the old primitive hand-loom, and large quantities of the yarn woven are spun by spindle and distaff, or by wheels. The competition of the fly-shuttle and the power-loom, and the elaborate spinning machinery, has not yet swept the ancient industry out of India. This is to be accounted for in many ways. The great industry of India is agriculture, which, during certain periods of the year, is practically at a standstill, and at such times the people occupy themselves and considerably augment their incomes by cotton manufacture, using the old and primitive methods of centuries back. It might be thought that the large mechanical spinning and weaving concerns of Bombay would have, ere this, monopolised the whole industry; but although labour in India is cheap. it may be dear, for a Lancashire weaver will attend to four or six looms, while the Indian weaver attends to one only. It is computed that at the present time there are actually more hand-loom weavers in India than ever before. The census of 1901 places the number at 2,700,000 : this, of course, is due to the vast increase in population. The production from these looms is double that of the power-looms employed in India. Unfortunately, statistics regarding the quantity of hand or wheel-spun yarn to supply these looms are not forthcoming, but judging from the enormous number of spinning-wheels still at work it must be very great. In the various villages where the textile industry is carried out, spinning-wheels form part of the necessary plant. The following, which appeared in a copy of the *Mysore Gazetteer*, conveys a very clear idea of the archaic methods still prevailing throughout India :—

> " COTTON.—The spinning of cotton into yarn or thread is the occupation of large numbers of women of the lower orders. But before cotton is ready for the spinning-wheel it is cleaned or separated from the seed by passing through a rude gin, and then,

> as it is too lumpy for spinning, it is fluffed up with a bow, which is the special occupation of a class of Musalmans called Pinjari. It is then carded into rolls handy for the spinner. The wheel is turned by means of a handle with the right hand, whilst with the left, which holds the cotton, the thread is spun on to the reel. After the bobbin is full the yarn is re-wound on to a swift. This is done by placing the axle of the swift perpendicularly on the ground, and keeping it in rapid motion by a touch with the third and fourth fingers of the left hand. The thread is then reeled off on to a bigger reel, and finally into a large skein, by passing round five small stakes set up in the ground in the form of a square. The skein is next dressed for the loom. The requisite number of threads is fastened firmly to fixed points, and being separated by small sticks, is supported by cross sticks. The cleaner then takes a brush of cocoa-nut fibre, and dipping it in a preparation of flour and water, passes it steadily up and down the entire length of the skein, using at the same time one of the small dividing sticks to facilitate the operation.
>
> "The loom is placed over a kind of well or hole, large enough to contain the lower portion of the machinery, which is worked, on the pedal principle, with the toes, the weaver sitting with his legs in the hole for the purpose. The combs are supported by ropes attached to beams in the roof, working over pulleys, and stretching down into the well to the toes of the weaver. In his right hand is the shuttle, which contains the thread, and which, passed rapidly through the spaces created by the combs, forms the pattern. The principal comb is held in the left hand. As the cloth is manufactured it is wound on the beam, by slightly easing the rope on the right hand and turning round the lever."

Similar wheels to those of India exist in China and Japan, emanating, it is currently believed, from India (Figs. 2, 3, and 4). Although large quantities of Manchester cloth are imported into China, the village manufacturing conditions remain similar to those of India. The empire is too vast, or too devoid of proper modes of transit, to permit of an economical distribution of imported goods, so China is likely to spin and weave her own materials until the country is broken up, or opened up. Whichever event happens, and it may be a combination of both, it is an event long expected and desired by European and American manufacturers as one likely to give a great impetus to the importation into China of woven materials. Japan, however, seems to have anticipated this and to have prepared for it. Her spinning-mills and weaving-factories will be able to produce more than home consumption demands, and with a saving in floating capital interest,

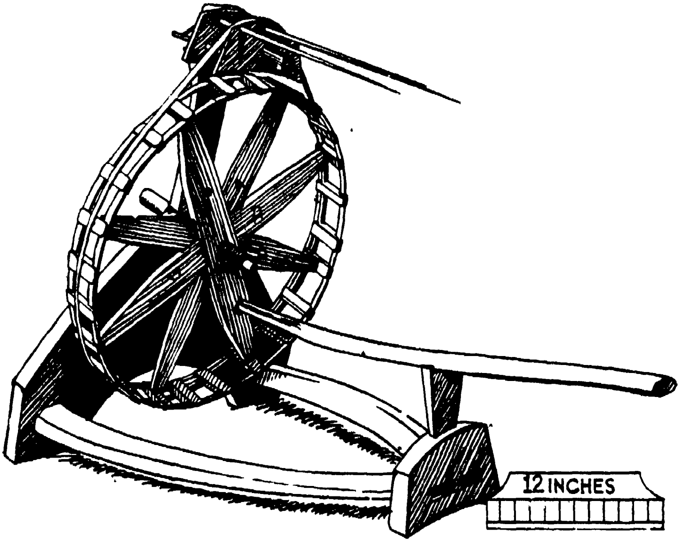


FIG. 2. CHINESE WHEEL, WITH THREE SPINDLES.
Worked by foot.

This wheel, in use in China to-day, displays one of the oddest forms of converting a reciprocating into a rotary motion. A certain amount of credit must be given to China for producing a treadle motion, when India on the one side and Japan on the other never seem to have attacked the problem. John Chinaman's methods are, no doubt, peculiar, and the treadle introduced into his spinning-wheel is one difficult of conception. It is a matter of regret that there is no photograph or picture available to show how this wheel is worked. Evidently one operator will be required to work the treadle with his feet, and considerable skill and practice will be necessary to keep the treadle in its place, both in the wheel and on the fulcrum. From the position of this operator, so far removed from the spindles, it would hardly seem possible for him to use his hands in the actual spinning, and as there are three spindles it will require two people to feed them. It would seem that a fourth spindle might be conveniently introduced without involving any extra labour.

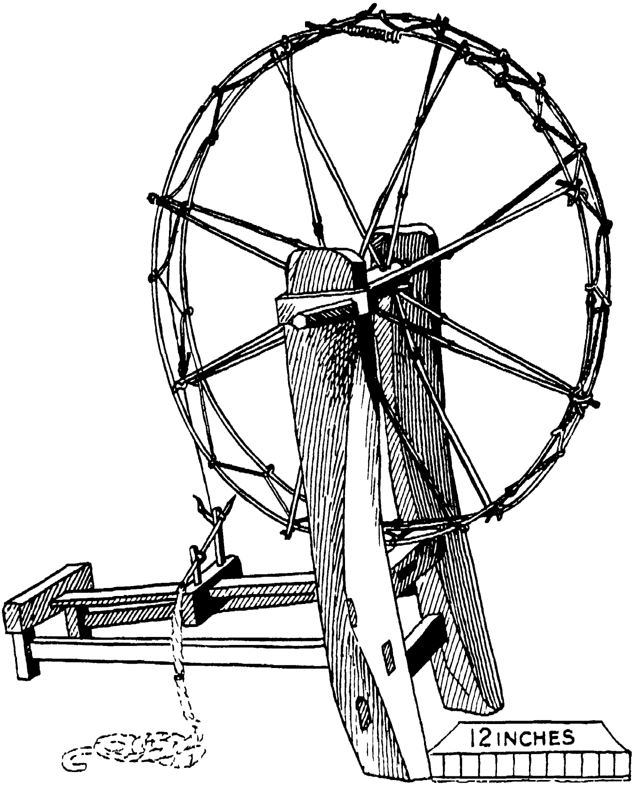


FIG. 3. CHINESE WHEEL.
Worked by hand.

Constructed mechanically like the Indian and the Japanese specimens. The wheel, however, is built up in a peculiar fashion, the face being formed of interlaced cordage. Throughout the whole of the vast Chinese Empire spinning-wheels of the types illustrated are in constant use; for although importations of cloth are extensive, yet the village manufacturing conditions remain: the Empire is too great to permit of an economical distribution of imported goods.

freight and insurance charges, etc., she will be a dangerous rival to the western powers, more especially if she should undertake the regeneration of the Mongolian people, and bring the countless millions of China under economic and military organisation. But even Japan's modern western methods have not yet stamped out the home-spinning and weaving industries which seem so particularly adapted to the artistic temperament of the people. The beautiful fabrics we are accustomed to see are still made in the old-fashioned way, exhibiting, as they do, the skill and inspiration of the worker who produces such charming effects.

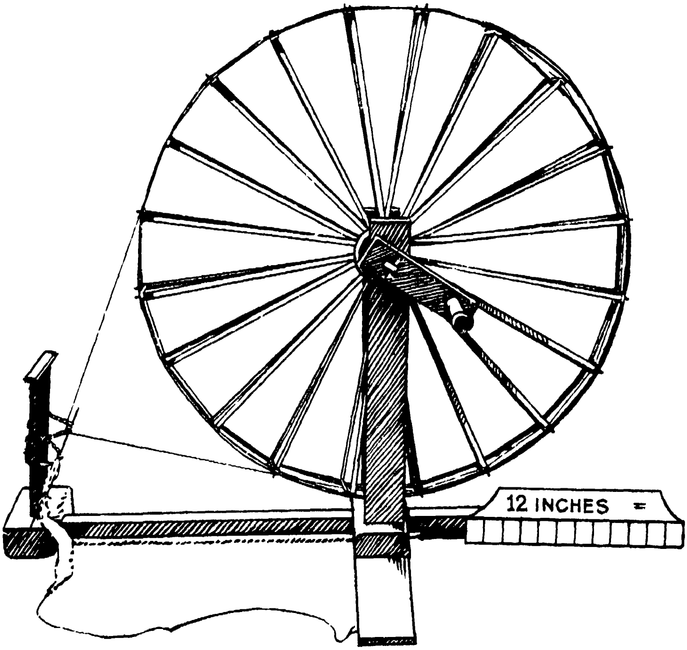


Fig. 4. Japanese Wheel.

To many it seems a pity that the picturesque home-industries of the East should be abolished and its people driven to tend automatic machinery amidst the surroundings of the modern factory. It would require the mind and pen of a Ruskin adequately to give expression to such regrets. As the West has solved these problems so will the East, and the domestic industries of spinning and weaving must, in time, be no more. Indeed, as they exist at present, more especially in India, they are far from remunerative. Only by long hours and strenuous labour can the hand spinners and weavers earn the barest pittance—a truth which robs the industry of its picturesque aspect. Efforts are being made to introduce the fly-shuttle hand-loom to replace the thirty-century-old looms at present in use. Much has been written on the subject of this change in the Indian press. No doubt this would improve matters if the Indian weaver, whose ideas are as antiquated as his loom, could be induced to adopt the more modern method. On this point there seems, however, much difficulty; and, indeed, if the fly-shuttle hand-loom were introduced universally in the hand-loom-weaving districts, its effect, in competition, would be to make any hand-weaving unprofitable. This ancient trade of the East seems nearing its natural end, and it would appear more seemly to let it die as it has lived.

Spinning-wheels similar to those now in use in Asia, but mounted upon legs, were in use in Europe prior to the 16th century. It is not known whence or how they arrived, but it is more than likely they were of Eastern origin. The addition of legs gave the wheels the necessary height to enable an operator to stand whilst working. The earliest known record we have of them is to be found in six illuminations, representing spinning-wheels, in an early 14th century manuscript on Canon Law. The manuscript in question is in the British Museum, is numbered 10 E IV, and the designs appear on folios 137, 139, 142, 146, 147a, 147b. It contains the Decretals of Creation, and the text is quite unconnected with the wheels, the representations of which are, along with many other devices, simply decorations (Fig. 5). The hand-wheel, as it may be conveniently called, to distinguish it from the later treadle or foot-wheel, is by no means extinct. In Ireland it still extensively exists for wool-spinning, and is called the "long wheel"; in Scotland, for similar purposes, it is used and is known as the "muckle wheel," and in Wales as the "great wheel" (Fig. 6). For hemp-spinning an adaptation of it is still in use in Holland, and for wool-

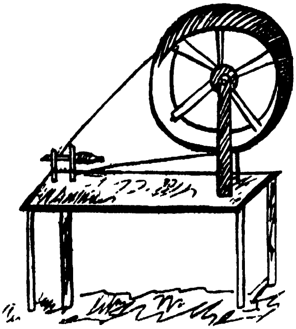


FIG. 5. SIMPLE SPINDLE DRIVEN BY HAND.
(*British Museum.*)

spinning in the Faroe Islands and Iceland, evidently introduced from Scotland through the Orkney and Shetland Islands. Professor Hugo Von Rettich, in his *Spinnrad-Typen*, states that the old hand-wheels of Austria are still to be found there, in use as cop-winders, for which purpose they would be admirably adapted. In the chapters to follow, on Ireland and France, some further notice of the hand-wheel will be taken. The evolution from the early spindle to the hand-spinning-wheel was simple and natural, but in both processes a serious defect existed, and one which called for considerable ingenuity and inventive capacity to overcome. It was the imperfection of the old system that the operations of spinning and winding had to be performed at different times. If the two could be done conjointly, the spinning capacity of the wheel would be more than doubled. To

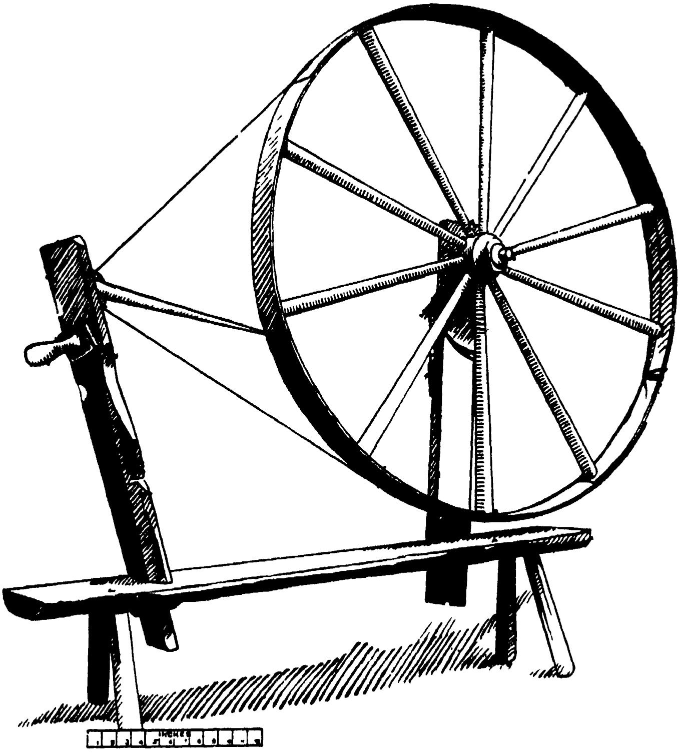


FIG. 6. WELSH WHEEL.

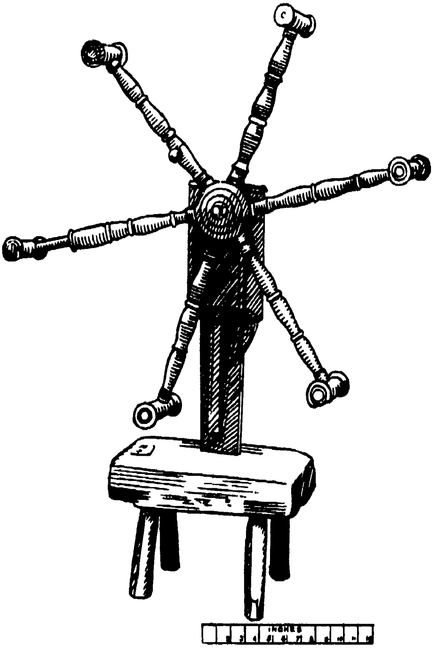


FIG. 7. IRISH REEL.

Used for checking a certain quantity of yarn. This was wound on the arms, and then taken off by sliding the movable collar on one arm, which allowed the arm to be bent.

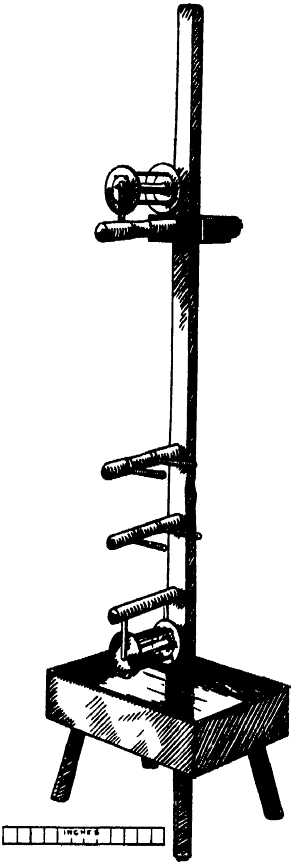
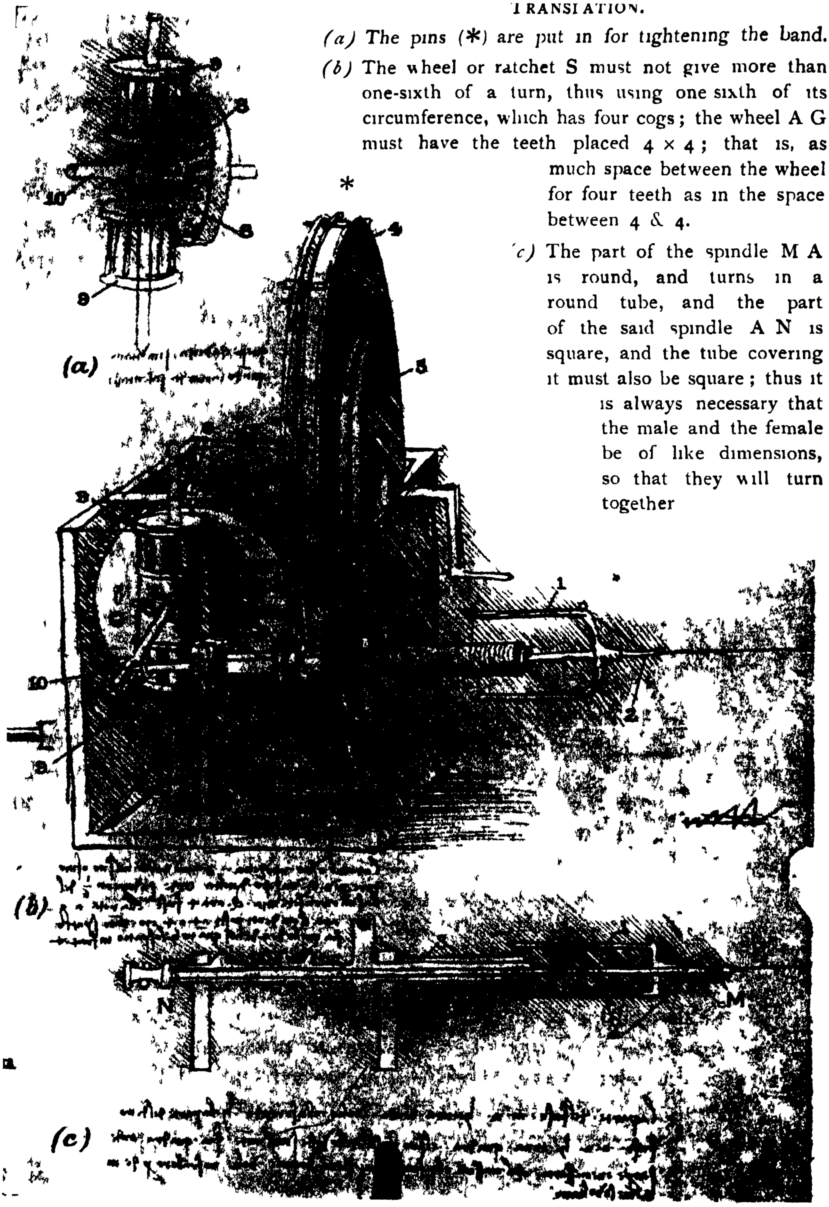


FIG. 8. IRISH SWIFT.

To hold the hank of yarn removed from the reel. The yarn worked around the two cage rollers, and was tightened by means of a hand-screw. The tray-like base was used to hold spare pirns used on the pirn-winder.

Johann Jürgen, a wood-carver, in Wattenbüttel, in Brunswick, is generally attributed the important invention of the flyer and the bobbin. The spindle was retained, as, indeed, it has been retained throughout all developments, for it remains to-day the twisting medium in modern spinning-frames. Jürgen attached a flyer to the spindle, which gave the twist, and the yarn was wound automatically, and by the same operation, on to a bobbin or spool running loose on the spindle. This was in the year 1530, and to-day the same principle exists in modern flax-spinning machinery. This invention was a great forward stride, as not only did it enable the spinster to produce more than double the quantity of yarn in a given time, but it allowed her to devote all her time and thought to the spinning process, the winding being self-regulating. Every credit must be given to Johann Jürgen for conceiving and bringing into practical use a novel idea of such movement, and one is inclined to believe that so far as he was concerned the invention was entirely original. The idea had, however, been thought out and designed some years before by that prolific inventor, artist, architect, and philosopher, Leonardo da Vinci. The fact that the date of Jürgen's invention is fixed at 1530, and that Leonardo died in 1519, gives proof of priority. A vast collection of Leonardo's sketches was found after his death, containing germs of brilliant ideas and many fully worked out schemes, showing his extraordinary and versatile genius. It would appear, however, that of his spinning invention (Fig. 9), as of many others, no practical use was made. It seemed as if it were simply tossed aside, being of no further interest once the problem was solved. Part of this collection of sketches is at present housed in the Ambrosian Library in Milan. They were donated to this library in 1639 by one of the noble Visconti family—a Duca Visconti—and are collectively called " Codice Atlantico " di Leonardo da Vinci. That Jürgen did not pirate this invention is evident from the fact that the sketches contain a still further important idea, accurately worked out, and one which is popularly believed to have originated in the brain of Richard Arkwright some 250 years later. This was the parent of modern " building," and would certainly have been introduced by Jürgen had he been in possession of Leonardo's devices. In order to traverse the spun yarn from end to end of the bobbin, Jürgen used hooks, called hacks in this country. These were attached to the legs of the flyer, and served to guide the yarn to the bobbin; the hooks ranged the full length of the flyer legs; and when



TRANSLATION.

(a) The pins (*) are put in for tightening the band.

(b) The wheel or ratchet S must not give more than one-sixth of a turn, thus using one sixth of its circumference, which has four cogs; the wheel A G must have the teeth placed 4 × 4; that is, as much space between the wheel for four teeth as in the space between 4 & 4.

(c) The part of the spindle M A is round, and turns in a round tube, and the part of the said spindle A N is square, and the tube covering it must also be square; thus it is always necessary that the male and the female be of like dimensions, so that they will turn together

FIG. 9 SKETCH OF A SPINNING-WHEEL BY LEONARDO DA VINCI; DIED 1519

Presented to the Ambrosian Library in Milan, 1639 the yarn had been, for a time, wound on one part of the bobbin, the operator changed it to a neighbouring hook, and so on till the bobbin was filled from end to end. In modern spinning, as in Arkwright's invention, the spindle blade is made longer by the length of the bobbin, which latter is made to traverse during the process of spinning, thus effecting equal winding without the necessity of stoppage to change from one hook to another. Leonardo arrived at the same result by causing his flyer to traverse, while his bobbin remained longitudinally stationary. Another idea of Leonardo provided for the introduction of two spindles and flyers, so that the operator could use each hand for spinning, and thus, theoretically, accomplish double the work (Fig. 10). Two-spindle spinning-wheels were introduced in Europe a couple of centuries later. From the accompanying reproductions of Leonardo's sketches it will clearly be seen that there is originality of invention, there is no evolution from an older type. There is, however, one marked defect which is emphasised in his two-spindle wheel; that is, the want of a treadle. It is evident that in his two-spindle wheel two operators will be necessary—one to guide the flax with each hand, and one to turn the wheel itself. Indeed, the arrangement is constructed with this end in view, the turning handles being placed at the opposite side to that at which the spinner works. It is probable he considered that inexpert child labour could be employed to turn the wheel, while the expert spinner had both her hands free to feed the two bobbins. The sketches

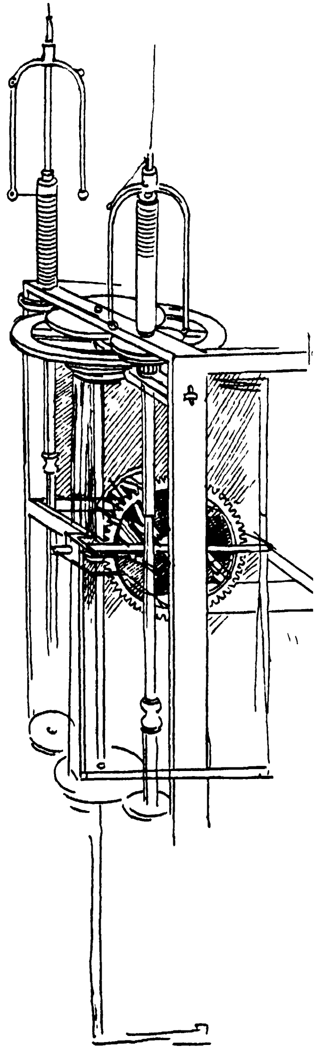


FIG. 10. LEONARDO DA VINCI'S TWO-SPINDLE WHEEL.

and Leonardo's notes attached to them, more especially the latter, require some expert study to be clearly understood. That they were understood by the inventor is evident and probably all-sufficient. The language he used is a curious old Italian hardly known to-day, and some words are so curtailed as practically to form hieroglyphics, which can only be penetrated by a savant, and much is simply indicated or implied. The annotations, however, have been transformed into modern Italian, and appear here translated into English.

When we take into consideration the early time at which these sketches were produced, and remember that probably they were never intended for the wheelwright's hands, but were simply made to satisfy the author that such mechanism could be constructed and applied to practical purposes, we cannot but admire the wonderful care and accuracy of the drawings and the remarkable mechanical skill of their maker.

IRELAND

CHAPTER II.

Pre-Huguenot Days

The early history of Ireland is so much interwoven with legend that it is difficult sometimes to know where the fable ends and the true history begins. If, as is generally supposed, a pre-Christian Phœnician colonization took place in Ireland, undoubtedly from such a source the art of flax-spinning and weaving would be acquired, the Phœnicians having learnt the craft from the Eygptians, with whom they had long and extensive business relations. The soil of Ireland has for centuries been known as suitable to the growth of flax, and once the knowledge of using the fibre was acquired, the growing of it would be a matter of small difficulty.

There is little authentic account of a linen industry in Ireland until the invasion of the English under Henry II., whose youngest son—afterwards King John of England—he appointed King of Ireland in 1185. Records are extant of the promotion of the linen industry in Ireland at that period—the promotion of an industry which had been existing probably for many centuries ; for Ireland, previous to the advent of the Normans, had been in close touch with the linen-manufacturing countries of Europe. According to Warden, who quotes from a list of exports furnished by Giraldus Cambrensis, there was no linen-manufacture in Ireland previous to the Conquest by the English in 1156. This, no doubt, is an error due to the fact that no linen was *exported* from Ireland; for the same author quotes from

MacPherson's *Annals of Commerce*, where it is stated, on the authority of the Chronicles of the period, that, about A.D. 500, fine linen was possessed by the inhabitants of Britain and Ireland. The bodies of the dead—at least those of eminent rank—were wrapped in fine linen. It is on record that Irish linen was used in Winchester in the reign of Henry III. in 1272, and there are further records of the export of yarns to Liverpool in 1545, by Leland, who says: "Yrisch merchants cum much thither and much Yrisch yarn that Manchester men do by there."

Fynes Moryson, secretary to Lord Mountjoy, Lord Deputy of Ireland to Queen Elizabeth, in his history of Ireland from 1599 to 1603, observes: "Ireland yields much flax, which the inhabitants work into yarn and export the same in great quantity; and of old they had such plenty of linen cloth, as the natives used to wear thirty or forty ells in a shirt, all gathered round and wrinkled and washed in Saffron because they never put them off till they were worn out."

Thus at this early period there existed a linen-yarn export trade from Ireland which has lasted till to-day. At this period Ireland was a spinning, rather than a weaving, country, most of the linen cloth used at home being of English, chiefly Manchester, manufacture, but woven from Irish-spun yarns. In January, 1632, Charles I. appointed Thomas Wentworth, afterwards Earl of Strafford, to be Lord Deputy in Ireland. This unfortunate nobleman set about with zeal to encourage and develop the spinning trade. An extract from a letter of his, dated 25th July, 1636, giving an account of the report he had made to the King and Council, is as follows: "There was little or no manufacture among them, but some small beginnings towards a clothing trade which I had, and so should still, discourage all I could, unless otherwise directed by his Majesty and their Lordships, in regard it would trench not only on the clothings of England, being our staple commodity, so as if they should manufacture their own wool, which grew to very great quantities, we should not only lose the profit we made now by in-dressing their wools, but his Majesty loses extremely by his customs, and, in conclusion, it might be feared they might beat us out of the trade itself, by underselling in which they were able to do.

"Yet I have endeavoured another way to set them on work, and that is by bringing in the making of linen-cloth: the rather in regard to the women, who are naturally bred to spinning; that the Irish earth is apt for the bearing of flax, and that this manufacture would be, in conclusion, rather a benefit than other to this kingdom. I have, therefore, sent for the flax-seed into Holland, being a better sort than we have, and have sown this year a thousand pounds of it (finding by some I saved last year, that it takes very well here). I have sent for workmen out of the Low Countries, and South of France, and set up already six or seven looms which, if it please God to bless us this year, I trust so to invite them to follow it, when they see the great profit arising thereby, as that they shall generally take and employ themselves that way, which, if they do, I am confident it will prove a mighty business."

To the Earl of Strafford must be given the credit of laying the foundation of the linen-manufacture in Ireland, although to his discredit, it is true, he attempted to do so by discouraging the manufacture of wool—an industry which was rapidly becoming large in Ireland and threatening to compete with the old-established woollen trade of England. It is not certain that any spinning-wheels were in use in Ireland at this time, most likely not, for the introduction of Dutch wheels proved an innovation the reverse of agreeable to the people. The Lord Deputy made harsh laws and instituted severe methods to induce the use of the Dutch wheels and looms. One of his proclamations, issued in 1638, stated " that any farmer, weaver, or linen-draper who manufactured flax fibre by any other mode than that which he prescribed, should be punished by the severest penalties the law could inflict." In that excellent work *Ireland and Her Staple Manufactures*, Hugh McCall quotes instances of the coercive measures employed by the Lord Deputy. "The poor people complained that they were commanded to spin flax into yarn by means in which they were unskilled, and every case that could be discovered where the arbitrary command had not been kept even to the letter was punished by the forfeiture of the flax and the levying of fines or confinement of the offenders."

In the Bill of Attainder brought in by the House of Commons during the trial of Strafford, one of the clauses was as follows : " While flax was a principal commoditie in Irelande, the said Earle, havinge got great quantities thereof into his hands, did issue out divers proclamations enjoyning the working of flax into yarne and cloth, and ordering the same in such ways whereof the natives of that Kingdom were unpractised, and that the flax which had been wrought in any other manner than that prescribed was seized and employed to the use of him and his agents : and that thereof the said Earle did gain in effect the sole profyte of that commoditie."

It is certain that the Earl of Strafford was sincere in his desire to place the linen-trade of Ireland on a sound basis; this is evidenced by the fact that he, to encourage others, embarked some £30,000 of his own money in the enterprise, all of which, he stated, was lost; but if he was right in introducing the Dutch spinning-wheel, his mode of enforcing its use was wrong. A man of his arrogant and dictatorial mind could not induce the Irish people to lay aside their accustomed mode of work merely at command; but a subsequent and more sympathetic rule carried the point, and succeeded in establishing the Dutch methods of spinning throughout the kingdom. The Duke of Ormonde, when Lord Lieutenant in the reign of Charles II., succeeded in reviving the Irish trade, which, during the troublous time of the Commonwealth, had been practically at a standstill. He followed generally the lines of Strafford, with whom he had been associated during that earl's administration of Irish affairs. In Edward Wakefield's account of Ireland we find that the Duke of Ormonde, on assuming power, procured several Acts of Parliament to encourage the linen-trade, also for inviting strangers to settle in the kingdom. He engaged experienced workmen from the Netherlands, he wrote to Sir William Temple, then Ambassador in Brussels, to send him, from Brabant, 500 families who had been employed in the manufacture, and soon started a flourishing industry in Chapel Izod, near Dublin, where, according to Wakefield, under the direction of Colonel Lawrence, cordage, sail-cloth, ticking, and linen were made of Irish yarn, equal in quality to any in Europe, and which could be sold at a lower price than that of any other country. In other centres of Ireland, linen manufactories were established, bringing in their train the spinning-wheel of Holland, which, up to 1742, if not later, was always called the "Dutch Wheel" in Ireland, to distinguish it from the "Castle Wheel" (Fig. 12). Now it is known as the old Irish spinning-wheel, and venerated as such. That it is in shape and movements the same as the old Dutch wheel will be seen by comparing the drawings of the two; viz., the drawing of what we conveniently call the low Irish wheel (Fig. 11), and that of the Dutch wheel from Borculo, which latter is an exceedingly old wheel indeed. It will be noticed that the rim of the Dutch wheel is much heavier than that of the Irish. This fact was noted by Richard Hall in his *Observations on the Methods used in Holland in Cultivating or Raising of Hemp and Flax*, published in 1724, in which he says: "Their wheels in Holland are much after the same form with ours in Ireland, called Dutch Wheels, only they are made firmer and the rims heavier."

Before passing from the great work accomplished by the Duke of Ormonde in reviving the linen-trade in Ireland, it may be well to quote from Carte's life of him the following, from Vol. II., page 342, in order that the difficulties he surmounted may be better understood: "But of all the schemes of this sort there was none his Grace was so fond of as that of a linen-manufacture. When he came to Ireland, he undertook the revival of this manufacture, and got Acts of Parliament passed for its encouragement, and for inviting Protestant strangers to settle in the kingdom. He was at the charge of sending understanding persons to the Low Countries to make observations of the state of the trade in those parts. It will not give one advantageous opinion of the industry of the people of Ireland to find that the want

This is the wheel most sought by collectors, usually called the old Irish spinning-wheel. Its shape is somewhat more graceful, and it certainly was the wheel mostly in vogue in Ireland during the palmy days of hand flax-spinning. In records of 100 years ago or more this wheel is always called, and with truth, the "Dutch wheel." It was introduced into Ireland from Holland by the Earl of Strafford. Definite records are extant of the introduction of this wheel into Ireland, with information accurate enough to stamp it as being distinctly Dutch. Irish spinning-wheels are prized, as Ireland was the foremost of the three kingdoms in the great hand flax-spinning industry, and to-day Ireland takes the lead in modern mechanical flax-spinning of the world.

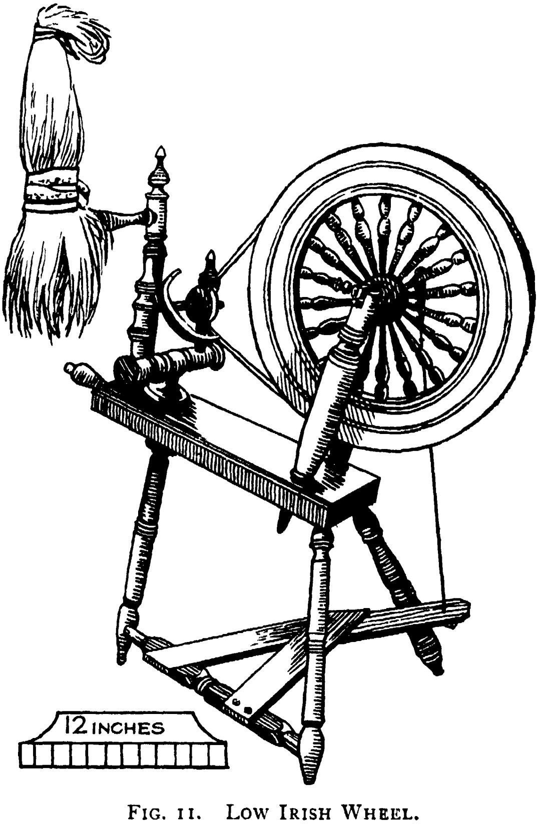


FIG. 11. LOW IRISH WHEEL.

of spinners, and the ignorance of that art, were the greatest obstruction met with in carrying the several branches of the linen-manufacture to perfection. But the Duke of Ormonde's example and encouragement got over all difficulty, and improved it in a very few years to such a degree that the whole nation felt the benefit thereof, and it is now the most considerable part of its commerce (1736). The difficulties, hazards, and expense were great at the beginning of this work, but they were all surmounted before he left the Government in 1669, when the nation was in such a way of flourishing with these manufactures that Colonel Lawrence did not question but posterity would own their future affluence to be a blessing from his Grace's great wisdom and excellent government." On April 1st, 1667, the Lord Lieutenant and Council published a proclamation notifying the allowance of a free trade to all foreign countries either in war or peace with his Majesty, and prohibiting the importation of linen and woollen manufactures, stockings, gloves, and other commodities out of Scotland, as drawing great sums of money yearly out of Ireland, and a great hindrance to the manufactures of this kingdom.

Strong evidence exists of the adept manner in which the women of Ireland learned to spin on wheels during the Duke of Ormonde's viceregalty of the kingdom, and, in comparison with the failure of the Earl of Strafford in this direction, points to the kinder and more sympathetic modes used by Ormonde to effect the object both desired to accomplish. Sir William Temple, during the time he acted as our Ambassador in Brussels, and during previous prolonged stays in the Low Countries and other parts of Europe, interested himself in observing the various manufacturing industries. His judgment and advice in furthering the manufactures of Ireland were sought by the Earl of Essex, Lord Lieutenant; and in an essay written in reply by Sir William Temple, dated July 22nd, 1673, we find the following in reference to the linen-trade: "The wool of Ireland seems not to be capable of any increase, nor to suffer under any defect, the country being generally full stockt with sheep, cleared of wolves, the soil little subject to other rots than of hunger, and all the considerable flocks being of English breed, and the staple of wool generally equal with that of Northampton or Leicestershire; the improvement of this commodity by manufactures in this kingdom would give so great a damp to the trade of England (of which clothes, stuffs, and stockings make so mighty a part) that it seems not fit to be encouraged here, at least

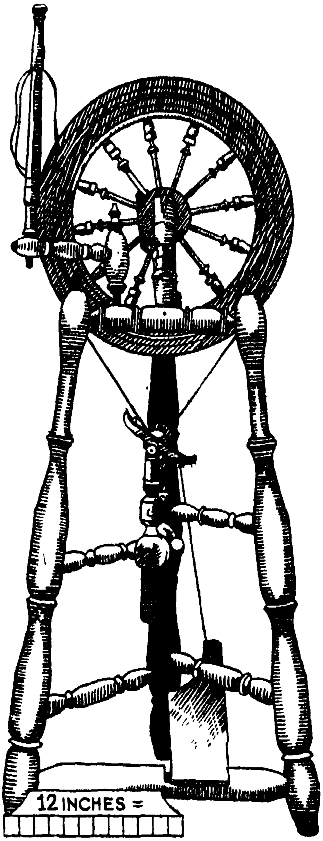


FIG. 12. IRISH CASTLE WHEEL.

This type of wheel is peculiar to Ireland, no other country possessing one quite like it. Its use is confined principally to Antrim and Donegal, and it is still used in these counties for the spinning of wool, flax-spinning by wheels having long ceased to exist. The position of the wheel inside the stout tripod frame-work gives the whole arrangement an amount of rigidity very desirable.

no further than to such quantity of one or two summer stuffs, Irish frieze and cloth from six shillings to fourteen, as may supply in some measure the ordinary consumption of the kingdom. That which seems most necessary in this branch is the careful and severe executions of the Statutes provided to forbid the exportation of wool to any other parts but to England, which is the more to be watched and feared, since thereby the present riches of this kingdom would be mightily increased, and great advantages might be made by the connivance of Governours, whereas on the other side, this would prove a most sensible decay, if not destructive of manufactures both here and in England itself. Yarn is a commodity very proper to this country, but made in no great quantities in any parts besides the North, nor anywhere into linen to any great degree or of sorts fitted for the better uses at home, or exportation abroad, although of all others this ought most to be encouraged, and was therefore chiefly designed by the Earl of Strafford. The soil produces flax kindly and well and fine too, answerable to the care used in the choice of seed and exercise of husbandry. Much land is fit for it here, which is not so for corn. The manufacture of it in gathering or beating is of little toil or application, and so the fitter for the natives of the country. Besides, no women are apter to spin it well than the Irish, who, labouring little in any kind with their hands, have their fingers more supple and soft than other women of the poorer condition amongst us. And this certainly may be advanced and improved into a great manufacture of linen, so as to bear down the trade both of France and Holland, and draw much of the money which goes from England to those parts upon this occasion into the hands of His Majesty's subjects of Ireland, without crossing any interest of trade in England, for besides what has been said of flax-spinning, the soil and climate are proper for whitening both by the frequent brooks and also winds in that country."

On 18th October, 1685, Louis XIV. of France revoked the Edict of Nantes, which for nearly 90 years had accorded some measure of religious and civil freedom to his Huguenot subjects. This misguided act of intolerance had the effect of expatriating at least half a million of the most industrious manufacturers and merchants of his kingdom. About six thousand of them found their way to Ireland, a large number of whom settled in Lisburn. These had been engaged in the various branches of the linen-trade in their native country, and finding the neighbourhood of Lisburn a congenial and convenient centre, they set

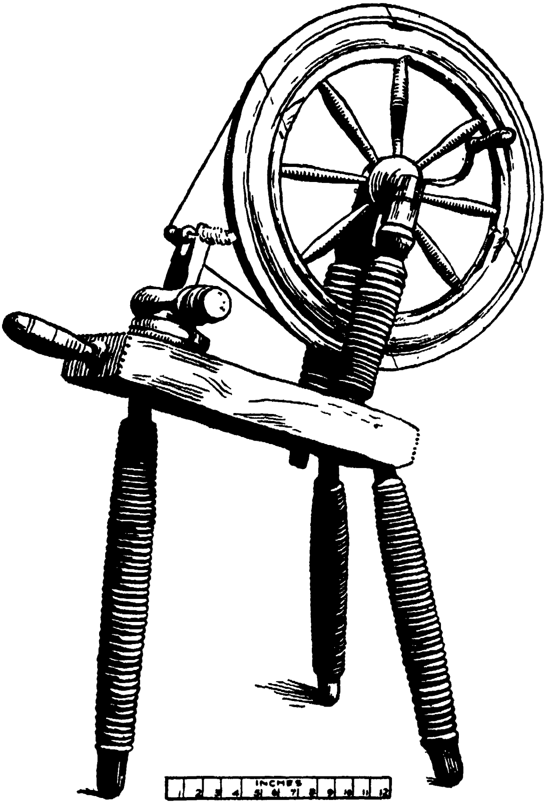


FIG. 13. IRISH PIRN-WINDER.

While on the swift, the yarn was wound on to the pirns, ready for the shuttle in the hand-loom.

about the prosecution of their manufactures there. The woollen trade of Ireland had been for a couple of centuries previous to this time of considerable extent, the country being admirably suited to the growth of wool, and the women were adepts in the spinning of it. As a consequence, and because of cheaper labour, Ireland was able to undersell England in the English markets. This state of affairs aroused so much jealousy and apprehension amongst those engaged in the English woollen trade as to cause them to plead with the Government for measures restrictive to the Irish woollen industry. As early as the reign of Henry VIII. such measures were enacted. We have seen how Strafford carried out a restrictive policy, and how, at a later date, it was recommended by Sir William Temple; but the trade was so firmly established that none of the measures adopted seemed to produce the desired effect. On the contrary, the trade increased to such an extent that English manufacturers, getting seriously alarmed, petitioned William III., who replied: " I shall do all that in me lies to discourage *the woollen manufacture in Ireland and encourage the linen manufacture and to promote the trade of England,"* and so a *bill* was passed *placing* prohibitory duties on the importation of woollen goods into England. The profitable trade which had existed in Ireland for so long, and which was natural to the conditions of the country, was utterly ruined. Warden observes, regarding this event, that " several thousand manufacturers left the kingdom. Some of the southern and western districts were almost depopulated, and the whole of the kingdom reduced to the utmost poverty and distress by these improvident measures."

Lord Sheffield, in writing of this narrow spirit, states that many of those who were compelled to leave the country were English or the descendants of English; for, about 1664, some clothiers from the west of England settled in Dublin and established the manufacture there. It is said that at nearly the same time sixty Dutch families of clothiers settled in Limerick. English clothiers settled also at Cork and Kinsale, and in 1675 some London merchants set up a woollen manufacture in Clonmel. "These now emigrated from Ireland in their resentment and necessities. Many of the Protestants moved to Germany, many of the Roman Catholics to Spain, and others of each description to France, where they received encouragement and showed the way how our wool might be smuggled from both islands. The foundations of manufacture were laid or were promoted, highly to the prejudice of England, and thus some return was made for the manufactures established in the British Dominions by the equally wise Edict (revocation) of Nantes."

England was wise in her own interests in petitioning the King to give to Ireland practically a linen monopoly, and reserve the woollen to herself. The difficulties of spinning and weaving the former fibre are considerably greater. Flax requires more selection, is hard and unyielding, requires a greater number of operations, and much more skill in manipulation. The woollen trade is a necessity; the linen trade produces, to a considerable extent, a luxury. The benefit to England is even more marked in the subsequent developments. The necessary woollen still maintains its prestige, while linen, besides having cotton in competition, has become still more a luxury since the use of this latter material became, through cheapness, nearly universal.

CHAPTER III.

Louis Crommelin

Amongst the fugitives from France, in anticipation of the revocation of the Edict of Nantes, was Louis Crommelin. His native place was Armandcourt, in the province of Picardy, a district then, as now, celebrated for the production of fine linens. His forefathers for many generations had been profitably engaged in this trade; he was a man of considerable importance and substance, and having fled to Amsterdam with other members of his family, he became known to William III., who, true to his promise to encourage the linen-manufacture, engaged Crommelin to oversee that manufacture in Ireland. The King acted promptly, for the same year in which he struck the death-blow to the woollen trade, saw Crommelin settled in Ireland.

Treating of the question of his engagement in an essay on the Improving of the Hempen and Flaxen Manufactures in the Kingdom of Ireland, published in 1705, Crommelin says: "His sacred Majesty of glorious memory, King William III., encouraged me to come and further (all I could) the linen-manufacture in this kingdom. He was graciously pleased to honour me so far as to give me audience himself, more than once, on that subject. He seemed to lay to heart the promoting of the work, and I took his zeal in this matter to be a demonstration of his favour and kindness which he bore to Ireland."

It would seem from this statement that Crommelin's services were not enlisted in any hasty manner, but after deliberate considerations,

LOUIS CROMMELIN.

From the portrait, painted about 1665, in possession of the family of Crommelin of Carrowdore, Co. Down.

his previous business knowledge and success evidently weighing with the King. In the essay above mentioned, Crommelin refers to these matters, saying: "In St. Quentin the manufacture of linen has flourished for several hundreds of years. My ancestors, beyond the memory of man, have been constantly gainers by the trade. I, myself, have followed it successfully for upwards of 30 years, until it pleased God to raise the Persecution against the Protestants of France, for which reason I was (with many others of my religion) necessitated to quit that kingdom."

Crommelin brought with him a colony of about seventy persons from France and Holland, and these, added to those settled during the few years previous, formed an industrial community which laid the foundations of a more extended prosperity in the linen-trade. Crommelin himself evidently saw the prospects of this prosperity, and did not hesitate to advance no less a sum than £10,000 towards the advancement of the industry. This action of his showed the confidence he had in himself and in the enterprise.

A year or so after his arrival, a patent was passed under the Great Seal appointing Trustees for carrying on and improving the linen-manufactures, wherein the sum of £800 a year was appointed for the interest of £10,000 to be advanced by Louis Crommelin or his procurement, as a stock for carrying on the same; as also £200 per annum, to be paid the said Louis Crommelin for his pains and care in carrying out the said work, and £120 per annum more for three assistants, and also £60 per annum for a French minister, to be continued during pleasure. This grant expired a year later owing to the death of the King; in fact, it would seem that the patent was never put in execution. Queen Anne, upon her accession, granted letters patent for carrying on and encouraging the said work, whereby, out of a sum of £1,180 granted annually, any person bringing in looms was to be recompensed at the rate of 8 per cent. per annum for the charge of such looms, "allowance being thereout made for salaries, in like manner as in the former, amounting to £380 per annum." This latter grant was for a term of ten years. During the period of this patent, Crommelin and his little colony of aliens worked with indefatigable zeal, and inspired others by their industrial habits. The Linen Board, established shortly before the expiration of Crommelin's patent, at one of its earliest meetings petitioned the Duke of Ormonde, then Lord Lieutenant of Ireland, to apply to Her Majesty for a renewal of the said patent, stating in the petition that it appears that Crommelin and colony have been very serviceable, and greatly instrumental in the improving and propagating the flaxen manufacture in the north part of the kingdom, and that the perfection to which the same is brought in that part of the country is very much owing to the skill and industry of the said Crommelin. When he was appointed Overseer of the Royal Linen Manufacture of Ireland, one of Crommelin's first acts was to introduce a number of spinning-wheels from his native province of Picardy. His reasons for doing so had better be put in his own words—*vide* the essay before mentioned—" They that would spin Flax ought in the first place to suit their Flax to the yarn which they would spin. The people of Flanders, who spin far finer than those in Holland, do always (when they spin) tie their Flax or Hemp on the Rock, straight down in a line, only at the lower end of their Flax they give it a loose turn up and so draw the thread straight down, whereby they have the whole length of the Flax. They of Holland draw out their Flax in a flat cake (as it were), and then tie it on the rock, whereby their Flax is spun athwart (as for your short Flax it must always be spun athwart, but for your long Flax, at length). The people of this country, in imitation of the latter, do all spin in that manner, both their long and short Flax, which is extremely preposterous, for first, they can never spin so fine and so even a thread by taking the whole length of it; secondly, they can never dispatch half the work that way, as they would do if they spun the whole length. Thirdly, their yarn when it comes to be made up into cloth, by their present way of spinning, must cotton much more than if it was spun in our manner, because by spinning across the Flax there are more ends everywhere appearing in the cloth, which rise and start up therein, than there would be if you drew your thread down the whole length of the Flax. Until the Flax of this Kingdom be brought to due length, it may be difficult to spin in the manner I am speaking of, or to make extreme fine yarns, but this and that must be rectified together, if ever you design to bring your manufacture to a reputation. The spinning-wheels of linen yarn, commonly made use of in this Kingdom, are such as turn by means of the person's foot who spins, which I take to be wrong, for it is impossible to twist yarn equally and in all parts alike, with such wheels. Do but consider, that if your Flax be short or long and is spun across or athwart, it never comes down from the rock equally. Your left hand is employed to guide and twist your yarn, your right is free, and at liberty to guide and govern your Flax, yet all this while your foot is going and yarn a-twisting, notwithstanding while this entangling of your Flax is a-removing, the yarn does not come down as fast as before, therefore must follow, of consequence, that some part of your yarn does twist more than some other does. This happening very often in the day, especially when your Flax is spun athwart or across, which occasions it much more to tangle than if it were spun down its length. Judge you whether there can be any equality of twisting by using this sort of spinning-wheels, whereas if your spinner can't turn her wheel but with her right hand, when that is employed in the clearing of the Flax from any encumbrance, the whole stands and does no longer twist. It may be said in answer to this that the foot may stop when these accidents happen, if care and heed be taken by the spinner, but experience shows the contrary, that the foot being used in a constant manner, it will insensibly continue to do so to the great prejudice of the goods which are made of that yarn, and to the unspeakable delay of the weavers who work it, for by unequal twisting of the thread it breaks more frequently than otherwise it would, and the weaver's time is taken up in knotting and fastening her yarn. There is yet another defect in the wheels I speak of, which is, that they go with two cords or strings, the one goes round the wheel and the 'whirl' of the spool, by which two strings, both the spindle and the spool, are turned at the same time, which ought not to be, for that over-twists your yarn. On the contrary, the wheels in France and Flanders go only with one string round the rim of the wheel, which likewise reaches round the 'whirl' of the spindle, and by the help of a string, one end of which is fastened to the form of your wheel, which you bring over the 'whirl' of your spool, and fasten at the other end to a peg whereon your last-mentioned string is wound. You keep your spool to as slow or quick a motion as you please, and twist your yarn more or less according as it is most for the profit and good of your yarn."

We have considered it advisable to copy this portion of Crommelin's essay, which relates to spinning and spinning-wheels at length. In the various and lengthy researches it has been necessary to make for the purpose of writing this work, very little matter descriptive of spinning-wheels is found, and this portion of Crommelin's valuable essay is interesting, in that it covers many points relating to the working parts of the wheels. We would feel inclined fully to agree with him in the advice he gives regarding the position of the flax on the rock.

It is true that in Ireland, even in recent years, the flax, before being placed on the rock or distaff, was tangled into a mass, or, as Crommelin expresses it, " drawn out in a flat cake." This was the mode practised in Holland in Crommelin's time, and was, no doubt, introduced by the Dutch spinners brought over by Strafford and Ormonde. The spinstress, when about to prepare her flax for the distaff, tucks one end in the bib of her apron, and taking the other end carefully by the corners, lays it over in broad folds, somewhat broader than the circumference of the distaff, and one upon the other. The writer has often asked old people why this practice existed, the only seemingly reasonable reply being, that the fibres were held together in a mass, did not deliver down in undue quantity, and that the spinner had more control over them. In all the various continental countries, where flax-spinning on wheels still persists, the writer has never seen this method adopted. The flax is always attached to the distaff, so that it lies straight down, exactly as it leaves the hackle. In the case of Holland, it may be noted that no wheel-spinning exists to-day. Of course, in the case of tow, or short flax, as Crommelin terms it, it must, of necessity, be spun in the tangled mass the hackling operation leaves it. No difficulty seems to be experienced by the spinners of continental countries; the flax does not deliver too rapidly; even in the spinning of the exceedingly fine yarns in the Cambrai district, the flax delivers true and regular under the careful manipulation of the operator. Crommelin's reasons appear sound and to the point. Let any spinning-mill manager of to-day imagine the result, if he were to cause his flax to be spread on the boards in the state in which the Irish women have been accustomed to spread it on their distaffs. The second portion of Crommelin's essay refers to the introduction of the Picardy Spinning-Wheel. In a lengthened *Inquiry into the State and Progress of the Linen Manufacture of Ireland,* published in 1757, the writer, treating of Crommelin's essay, remarks: "He disapproves of the spinning-wheel then used, which was the same as is now turned with the foot, and recommends the wheel made use of in France and Flanders, that is turned by hand, and advances many frivolous reasons to support his recommendations." We are inclined to think that this writer was correct, but very much regret that he, himself, did not advance his reasons. It would have been of great interest to know why Crommelin's wheels were distasteful to the Irish people, for any reason given for their unsuitability by one who had experience of their working must be considered important. The reversion to the hand-driven wheel would seem, in itself, a retrograde movement, and, unless accompanied by some new conditions, not one to be recommended. The reader may more readily understand Crommelin's arguments, if we put his quaint and somewhat involved remarks on this subject into another form. Briefly they are these: in a wheel worked by the foot, both hands are free, one to draw the flax, the other to guide it to the flyer. If the flax gets badly entangled, both hands are necessary to free it, and during this operation it is not so freely fed to the flyer. The treadle, nevertheless, may be going, and the result is an overtwist at that particular portion of the yarn. If, however, a hand-turned wheel is used, the wheel must automatically stop, when both hands are employed to free the entanglement, and thus no overtwisting can occur.

These arguments appear, in so far as they go, to carry a certain amount of weight, but our authority, who deemed them frivolous, would possibly argue that, in the aggregate, a much more regular yarn could be produced when both hands are free to draw the flax. It is simply the case of an extra drawing-frame, and our modern spinner can appreciate the argument. There is, however, a potent proof that Crommelin was wrong. Time, it is said, tells all things. In Ireland not a vestige, not even a memory, of Crommelin's wheel remains. The writer was very fortunate in procuring one exactly as described by Crommelin, and which, it is verified, was in use in Picardy over 125 years ago, not thirty miles from Crommelin's birthplace. He also, from the same place, procured a much later wheel in every respect the same, but—with a treadle. In Cambrai and district to-day, where the finest yarn is spun, the treadle-wheel is used on the Dutch model which Crommelin sought to discard, and in Brittany, where a few peasants still spin for home comsumption, similar wheels are employed. So all we see of Crommelin's wheel to-day takes the form of a rare curiosity. It is interesting to note Crommelin's remarks relative to yet another defect in the wheels in use in Ireland. This refers to the dragging, as it is technically called. In spinning with flyer and bobbin, either flyer or bobbin must run somewhat faster—viz., there must be flyer lead or bobbin lead—otherwise the yarn would not be wound upon the bobbin. The same results are practically obtained by either system, but there are different modes of arriving at it. In the wheels in use in Ireland, and indeed in the majority of all wheels, the system complained of by Crommelin prevails. He speaks of two cords being used to drive—one round the wheel and the whirl of the spindle, and the other round the wheel and the whirl of the spool or bobbin. As a matter of fact only one cord or band is used, passed twice round the wheel and once round each "whirl" or wharve, the results being, however, the same.

The wharve or groove of the bobbin being a little smaller in diameter than that of the flyer, or rather of the spindle of which the flyer forms a rigid part, we have bobbin lead. The defect which Crommelin speaks of exists where the relative speeds of spindle and bobbin are always the same, whereas either should vary as the bobbin, getting filled with yarn, increases in its diameter. In the instance of bobbin lead the bobbin should increase in speed or the spindle diminish in speed, and in the case of spindle lead the reverse should take place. In Crommelin's wheel we find spindle lead, the spindle being driven by means of one band, and the bobbin, being loose upon the spindle, revolves by the pull of the spun yarn. To check the speed of the bobbin a brake or drag is applied by means of a string, one end of which is fastened to the frame-work of the spinning-wheel, is brought over the wharve or groove of the bobbin, and fastened at the other end to a peg upon which the string is wound and tightened like a fiddle-string. This tightening of the string causes it to bear with increased pressure upon the bobbin groove, and this pressure is increased as the bobbin fills, getting larger in diameter, with an inclination to increased velocity, and thus the spool is driven at as slow or quick a motion as may be desired. This system, which is that in use in modern flax-spinning frames, is only applied in the case of these two Picardy wheels and to one from Bohemia, a comparatively modern wheel, made in a district where there are numerous spinning-mills, and evidently copied from the modern spinning-frame. About a dozen other wheels in the collection in the Belfast Municipal Museum are driven by means of only one band and have bobbin lead. Here the bobbin is driven, the flyer and spindle run loose and are revolved by the pull of the yarn. The brake or drag is applied to the spindle and flyer, and this drag must be decreased as the bobbins fill. This system is in every way the reverse of that employed by Crommelin. Either of these methods, with an adjustable means of dragging, is correct, Crommelin's contention being right.

CHAPTER IV.

The Rule of the Linen Board

The history of the linen-trade in Ireland up to the time of mechanical flax-spinning, is now involved in the history of the Linen Board. His Grace the Duke of Ormonde, Lord Lieutenant of Ireland, having (pursuant to an Act of Parliament) appointed Trustees for the linen-manufacture, they were, by his Grace's direction, summoned to meet at the Castle of Dublin, on Wednesday, the 10th of October, 1711, where the deed of their appointment was read to them. This deed states that " Whereas by Act of Parliament made in the ninth year of Queen Anne's reign, entitled an Act to enforce such Acts as have been made for the improvement of the linen-manufacture, for the further regulation of the same, it is amongst other things enacted that the Lord Lieutenant for the time being shall, may, and is hereby enabled to, nominate and appoint certain Trustees for the disposal and management of the duties granted by the said Act, according to the trusts and powers thereby invested in them : to consist of an equal number of persons out of the four Provinces of the Kingdom." Then follow the names of those appointed, some eighty in all, or twenty from each province chosen from the leading men of the country. These were authorised and empowered to put the Act in execution, according to the true intent and meaning thereof. The following table of disbursements, made by the Trustees during the first twenty-six years of the Board's existence, will give a fair indication of the work taken in hand

The question of encouraging the growth of flax in Ireland, and to stem its importation, was made a serious question. In the eleventh year of Elizabeth's reign, an Irish statute was passed prohibiting anyone to steep hemp or flax in any fresh running water, on pain of forfeiting same or treble value, this Act, to be proclaimed, quarterly, in every market and at every assizes and sessions, not to prejudice Lords having liberties. This Act would naturally hinder the growth of flax. Further Acts of William III. and Anne provide for the free importation of Irish flax into Great Britain, and for the encouragement of its growth. In 1716 the Trustees caused an advertisement to be circulated stating that they were prepared to encourage the raising of great quantities of hemp and flax from foreign seed, and were willing to agree with one person in each county who would contract with them to sow six plantation acres of fresh ground with hemp-seed, and with one other person in each county who would sow eight plantation acres with flax-seed. They agreed to give to each contractor the full quantity of seed; viz., for hemp-seed, five bushels per acre, and 20/– per acre in money; and for flax-seed, four bushels per acre, and 10/– per acre in money, the seed to be delivered in due time at the ports, and the money to be paid when the hemp or flax is pulled, upon affidavit of the party contracting. For the second year they agreed to give the same person at the rate of 40/– per acre for hemp, and at the rate of 30/– per acre for flax, for sowing a quantity of fresh ground not exceeding nine acres nor under six for hemp, and for flax not exceeding twelve acres nor less than eight, with good foreign seed or with the produce of such first year's seed well saved; one moiety to be paid when the hemp or flax is pulled, the contractor to supply properly qualified labour for scutching and hackling; and the Trustees agreed to supply a complete set of tools for breaking, hackling, and dressing upon security to return the same, or others of the like sort, at the expiration of the contract, if required. The counties in the province of Leinster were supplied with seed at Dublin; those in Munster at Cork and Limerick; those in Connaught at Athlone; those in Ulster at Belfast and Derry.

At the same time the Board also instituted premiums for flax and flax-seed produced, which caused an increase in cultivation. In 1721 the Board agreed to pay for instructing twenty persons yearly in the method of sowing, watering, grassing, and saving flax, and for teaching seven persons yearly for seven years in scutching and

hackling. In 1723 a certain Gasper White was sent to Kœnigsberg and the adjacent parts of Poland and Prussia, and was directed to bring over to Ireland some persons skilled in the raising, cultivating, and dressing of hemp and flax, not exceeding twenty, and not less than twelve in number. He was also required to bring over one or two sets of their several engines, tools, and utensils for breaking, scutching, and dressing hemp and flax, unless where they were too large to be carried, in which case models of them were to be brought and a person who understood making them. The parts of Poland visited by White were evidently those annexed to Prussia by Frederick the Great and his successor. It seems somewhat odd that the Trustees thought it worth their while to obtain workmen and their implements from regions so distant, and, one would consider, so backward, when Holland, the first flax-raising country in Europe, lay so close at hand. It is impossible to assign any reason, unless it be that flax from those districts had been imported into Ireland well scutched and put up. It is hardly possible that any scutching-handles and stocks were found to be better than those employed in Ireland, introduced by Louis Crommelin. The power-driven scutching-handles, as we know them to-day, and the ordinary breaker with three fluted rollers, such as we still see in many lint mills in Ireland, were first invented and brought into use in Scotland in 1765. Previous to the bringing over of these German and Polish workmen, a number of flax-dressers were brought over from England (a flax-dresser, by the way, was a flax-scutcher, not a hackler or sorter as he is to-day). These men travelled the country, teaching their trade in various districts after due trial had been made of their ability and suitability. Again, in 1723, persons skilled in dressing flax were sent for to Targow in Holland, and the next year seven men were brought from Lincolnshire and provided by the Board with breaks, scutching-boards, scutching-handles, and rippling-combs. Premiums were given for instructing apprentices in the art of flax-dressing, but such premiums were not to be paid until the apprentice "shall break, scutch and hatchel (hackle) a parcel of flax before some neighbouring Justice of the Peace, who shall certify the same." Premiums were also given for instructing common labourers under twenty-five years in the art of flax-dressing. The prices arranged for scutching and hackling were as follow:—For breaking and swingling (*i.e.*, scutching) flax, not more than one shilling and twopence per stone, and for hatchelling flax to five dozen in the pound and under from 8d. to 7d., and for hatchelling flax to spin from six to ten dozens in the pound, 10d. It is interesting to note that there were a great number of women hacklers most expert at their trade; in fact, a couple of women instructors were brought over from Holland and placed in Dublin to teach the people. We purpose to treat more fully of the retting, scutching, and hackling processes when writing of the Low Countries (Belgium and Holland).

In the matter of spinning-schools considerable pains were taken. An Act of Anne, Cap. 9, states that a school for teaching children the art of spinning hemp and flax, or one of them, shall be kept in every place where there is a workhouse. The Act provides that a sum of £10 shall be paid to the person teaching school for the first year, whereof £5 shall be laid out in spinning-wheels and reels to be employed in every such school, and £6 per annum after the first year, the persons so teaching school providing hemp and flax at their own cost to have the benefit of all yarn so spun in such school. A committee was appointed by the Board to consider what places in each province should be the most proper for erection of spinning-schools, and to prepare proper instructions for the regulating and governing of such schools, which were to be set up within three months after the grant. The regulations and instructions were ordered to be printed, and a copy sent to each of the Trustees, with a request that they shall, from time to time, visit the schools in their neighbourhood and transmit an account of the conditions thereof to the Board. These regulations were carefully thought out, and contained provisions for the careful teaching of the scholars, who in each school were to be not less than twelve and not more than twenty in number, their ages varying from eight to fourteen years. Parents were allowed sixpence a week towards clothing and dieting each child sent. At the end of the apprenticeship period each learner was presented with the wheel she had worked, and new wheels were supplied for new scholars. If the mistress of the school did not bring at least half the scholars to spin five dozen to the pound in the first year she was turned off. At the end of each quarter the mistress was compelled to send an affidavit stating the number of scholars who had been properly taught that quarter, upon which the Board granted an order for paying the allowance. Itinerant men received instructions to visit all spinning-schools within their respective districts at least once a quarter, and to make a roll of the names of the scholars, their age, and time of entrance into such school; to give instructions to the spinning-master or mistress, to keep a faithful account of such scholars as were absent, and on what days, which account was to be given to the itinerant man at each visit, and, by him, to be returned to the Board, so that deductions might be made for the time of absence, and careful inquiry was to be made as to the cause of such absence. The yarn was carefully examined and samples taken at each visit for comparison. Wheels were examined to see if they were properly made and kept in good order. These itinerant men were instructed not to visit the schools regularly on stated days, but to vary the day of the week and month, and they were to keep in all points an exact account of the state of each school, which account they were to transmit to the Board. The regulations regarding the spinning-schools were, from time to time, varied or added to as circumstances demanded, and a strict adherence to them seems to have been enforced with fair results. Special prizes were given for the spinning of five counts of yarn, and later, in 1736, two flax-dressers, two spinning-mistresses, and two weavers were brought over from France to instruct in the spinning and weaving of fine cambrics under the direction of the Board.

Great care was taken in the selection of the itinerant men. Certificates of their abilities had to be produced, and they had to lay before the Board a scheme of the method they intended to follow in cultivating hemp and flax and fitting it for the wheel. The following is a copy of an actual certificate, dated January, 1712: "I do certify that it appears to me that James Bradshaw has for several years employed his time in the Linen Manufactures, and that he has several certificates of his understanding in that mystery, and of his good deportment in the country where he lived, being near Lurgan in the County of Armagh, and I believe him qualified to be employed as a hemp and flax man under such rules as the Trustees shall think fit to appoint. (Signed) W. BURGH."

By an Act of Parliament, 2 Geo. I., cap. 13, the Trustees, or any five of them, shall administer the following oath to such itinerant flax and hemp men as they shall employ: "I, A. B., do swear that I will well and truly execute the office of an itinerant man, flax or hemp man, according to the best of my skill and knowledge; that I will obey all lawful commands and directions which I shall receive from the Trustees appointed for the improvement of the Flaxen and Hempen Manufactures, and will make just and true returns of my proceedings, and of such things as shall be given me in charge by the said Trustees relating to the said manufactures, according to the best of my knowledge and information, without fear, favour or affection, so help me God."

These men were granted a salary of £40 a year, and had to give £50 security for good behaviour. They were stationed at certain places which they were not to quit under a penalty, or removed from one district to another occasionally as the Board might direct, but two itinerants were not allowed to reside at one place. Their duties, amongst others, were to attend the delivery of flax-seed, to attend the Assizes and Sessions and make themselves known to Gentlemen, and to keep diaries of their proceedings, to attend the Assizes in their several districts and prosecute abuses at the expense of the Board, to employ proper Attornies at each Assize, to apply to the Judges of Assize to appoint a proper Attorney at every Assize where prosecutions are necessary. To prosecute such weavers as set up for master-workmen, to certify the quantity of ground sown with hemp and flax-seed, to recommend the weaving of certain cloths, to certify the abilities of apprentices to the damask weaving. They were directed to prepare and manage land for sowing hemp-seed and to show the country their skill in that manufacture. They were to assist the officers of the revenue to discover all unstatutable yarn attempted to be exported; they were instructed to attend the spinning-schools; they were not allowed to engage in any manufacture whilst in office, and were enjoined to do their duty without favour or affection, but entirely to consult the public service. These are some of the duties which the itinerant men were called upon to fulfil, and they give a fair indication of the extent of work undertaken.

When Louis Crommelin settled in Ireland he complained of the looms then in use in that country, stating that they were only suited for weaving woollen cloth, and that linen and woollen were promiscuously worked on them as occasions required. He recommended the introduction of three different kinds of foreign looms—a Dutch loom for weaving strong fine linen cloth; a loom, called an "Estille," used in Flanders for weaving cambrics, and a French loom, used in France and fitted for cloth of Normandy and Brittany. The export of linen goods from Ireland at the time of the accession of William III. amounted to the value of but £6,000; and Crommelin, very naturally, considered that the methods of manufacture in vogue in the prosperous linen-manufacturing countries of Europe must be adopted in Ireland if the output of goods was to be increased. It was contended by some of his contemporaries that his innovations were too rapid and ill-timed, that he attempted to change the whole aspect of the Irish linen trade forthwith, and establish in its stead the much finer French trade with which he was intimately acquainted, instead of encouraging the existing manufactures of Ireland by employing better methods and gradually introducing the weaving of finer counts. It would seem that, of necessity, this latter plan had to be adopted, for fine yarns needed for the goods Crommelin desired to produce were not forthcoming, the skill required in producing them being much greater than that required in weaving them. Competent reed-makers, and men skilled in putting looms together, were brought from abroad, and, by the time the Linen Board Trustees commenced their labours, the manufacturing end of the linen-trade was on the way towards propre organisation. When the Board had been in existence five years they had subsidised twelve weaving factories in different parts of the country, each containing from six to thirty looms, most of them with bleach-greens attached, but strict care was taken that the money advanced carried with it certain proper obligations, as the following contract, which may be taken as a specimen, will show: "Know all men by these presents, that we, Jonathan Hewit, of Abby-Boyle, in the County of Roscommon, weaver; John Hewit, of Dublin, clerk, and Patrick Maddin, of the said city of Dublin, farrier, and each of us, are firmly bound unto our Sovereign Lady the Queen, in the just and full sum of two hundred pounds sterling, current and lawful money of Great Britain, to be paid to Her Majesty, her heirs and successors; to which payment, well and truly to be made, we bind us and each of us, our and every of our heirs, executors and administrators, jointly and severally, firmly by these presents. Sealed with our seal and dated this 7th day of January, 1713–14.

"The condition of the above obligation is such, that if the above named Jonathan Hewit shall on or before the 24th day of June next erect in some convenient place in or near the town of Abby-Boyle a good new Bleach-Yard containing one-and-a-half English acres, and enclose the same, and erect thereon a sufficient Buck-house (bleach-house) and provide the same with proper utensils; and also on or before the 25th day of December erect and set up in Abby-Boyle three good and sufficient looms for making hempen sail-cloth and keep the looms constantly employed for seven years and work up yearly in each loom at least eight hundred yards of such sail-cloth and send up to the Trustees on or before the 10th January in each year certificates of so much cloth being made there in said time, signed by the Chief Magistrate of the Corporation and Minister and Church Wardens of Abby-Boyle, and likewise on or before the first day of May next erect and set up six looms for the making of right dowlass linen, of high white yarn and of such kinds and sorts as the said Trustees shall from time to time appoint according to patterns to be sent and sealed with their seal; and on or before the said first of May next likewise erect and set up eleven good looms for the making of sheeting and other kinds of linen; the said seventeen looms to be kept constantly employed for seven years from the said first day of May next in weaving good and sufficient dowlass and other kinds of linen above mentioned; and to work up in the said looms ten thousand, two hundred yards of such cloth every year, and send up yearly certificates thereof; and then, and in such case, the above obligation to be void, and to have no effect, otherwise to remain in full force and virtue in law."

In November, 1715, a committee, appointed to inspect the state of the linen-manufacture and consider what might be done for its further improvement, reported, amongst other matters, that John Hewit had made a bleach-yard of only half-an-acre provided with a good buck-house and utensils, had set up his whole number of looms, but had not kept them constantly employed, had made no sail-cloth, nor sent up any certificates. Complaint was also made of a certain John Beck, of Downpatrick, who had been subsidised to set up a bleach-green of four acres with a buck-house and proper utensils, and thirty-five looms to be kept constantly employed for seven years. It seemed his bleach-yard contained only one acre, that he erected only nine looms; but that, besides these, he employed thirty-one looms, not his own, and of poor construction. We give these extracts from the report to show the care the Board exercised in their trust. In all the provinces small factories were thus established and kept under strict supervision. The average cost of the looms supplied was 16/- each, the Board providing the timber. Specifications and estimates of looms suited to different varieties of cloth were applied for by the Board, carefully considered, and, where thought necessary, amended. It does not appear that any large number of weaving factories were established; the difficulty of procuring hands to keep the looms in constant work was the drawback. In the two cases mentioned of Hewit and Beck, no doubt the obstacle was the same. At certain seasons of the year field labour engaged the attention of the weaver, and his loom lay idle. Such an exigency could scarcely be overcome in an agricultural country; and, indeed, at the present time, where hand-loom labour is employed, much valuable material is locked up in idle looms when out-of-door work is pressing. In 1727 it was made a standing order of the Board that no greater number of looms than six be granted to any one person who shall set up a manufacture for the future. A book was provided for entering particulars of all looms, tools, and utensils lent out by the Board, and two brands or stamping irons were made, a greater and a lesser, to stamp all looms and utensils lent by the Board; and at a later period it was enacted that all such looms, etc., made in Dublin should be stamped in the presence of one or more Trustees of the Linen Board, and that the stamps be lodged in safe custody with the Secretary. These looms and other utensils were stamped in order to show that they belonged to the Board, and could not be distrained. Where they were seized for rent, as happened frequently, the bailiffs were confronted with an Act of George I., which stated that no utensils which the Trustees shall lend to any person, being branded with their seal, shall be distrained on any account, or seized in execution, or on any process. A very judicious law exists in Russia to-day, which prevents the seizure for debt of certain articles belonging to the petty farmers: one horse must be left, and no agricultural implements may be taken.

Many laws were passed in the reign of Anne and in succeeding reigns granting certain privileges to weavers, and generally regulating the trade. In the second year of Anne, a law was made wherein it was enacted that every linen weaver, being a Protestant, having served his apprenticeship to the said trade for five years, shall be exempted from parish duties for seven years, and shall also be a freeman of the city or town corporate wherein he shall set up his trade, during his residence, and shall also be exempted from serving on juries at Assizes or Sessions; but no such Protestant weaver shall be entitled to the aforesaid privileges unless he shall have served five years' apprenticeship to the trade, and worked two years after that time as a journeyman, except such as shall be actually master workmen or have passed their times of apprenticeship before the passing of the

Act. The like privileges were extended to all foreigners, master workmen, being Protestants, who were then or should thereafter come into the kingdom and set up looms and work at the linen-trade. A further Act was passed in the eighth year of Anne, which provides that if any person whatsoever, being a native of Ireland, not having served his apprenticeship to the trade of weaving flaxen cloth for five years, and weaving sail-cloth for two years, shall set up for himself and keep a loom, and work at the same as a weaver of linen cloth, he shall for every such offence forfeit £2 10s.; and if no distress can be found, such offender shall be committed to the house of correction for a month. This exceedingly harsh law, which was passed at the instigation of the Huguenot refugees, was distinctly to their benefit and detrimental to many thousands of native weavers who would have been thrown out of employment had the Act been put in force; but the injustice was so exceedingly manifest the law did not take effect. The weavers were at the same time agricultural labourers, as many in Ireland are to-day, although expert more or less at the loom, and had, of necessity, served no regular time of apprenticeship, while under proper guidance they were capable of the fullest dexterity. The alternatives for these men were, to serve five years' apprenticeship, or abandon their trade. The first would reduce them to the status of charity-school boys, who were usually handed over to the master weavers, and the second meant unemployment, with all its concomitant distress. The passing of this Act, inspired, as it unquestionably was, by those who sought and found in Ireland shelter from oppressive laws, is greatly to the discredit of the Huguenots. Any foreigner coming into Ireland could ply his shuttle unmolested, whether he had served an apprenticeship or not, whilst many thousands of native weavers must begin the world again or starve. The law was, undoubtedly, not advocated in order to advance the interests of the linen-trade; it was rather designed to give employment to the refugees at the expense of those who extended to them a hospitable welcome. It would appear from contemporary writings that the French colonists, in whom the direction of the linen-manufacture was vested, strongly advised the passing of the several Acts regulating the industry. In the statute of Queen Anne, Session 2, chap. 4, there are forty clauses dealing with this matter, many of which were of the utmost benefit. The third clause dealing with reels is worth quoting; its substance is as follows:—Each hank or dozen shall be of one yard and a quarter in length, and no more, and each cut shall be separated as the same shall be reeled, and not afterwards; and in the reeling the said linen yarn, no person shall reel more than one thread at a time, and the standard reel of this kingdom shall be two yards and a half in circumference. Any person who shall expose for sale any yarn in other manner than as aforesaid, and be convicted thereof, shall forfeit the whole hank in which any cuts shall be falsely made up to him who shall inform and prosecute the same with effect. The effect of this statute was to give the weavers confidence in their yarn purchases. Previously yarn was reeled in any manner and on any size of reel suitable to the ideas of the spinner, and the weaver was ever at a loss to know what actual length he was buying. It is a curious fact that out of seventeen reels and measuring sticks collected on the Continent, and in use there when procured, no two are alike in circumference. This leads one to the knowledge that no definite size of reel existed, which must have caused endless confusion when the wheel-spinning industry existed commercially. At the present time, where the yarn spun at home is also woven at home for domestic uses, the matter is of little consequence.

A further clause stated that no linen cloth should be exposed for sale or exported that was not at least half an English ell or twenty-two-and-a-half inches in breadth, and twenty yards in length, except linen cloth made in imitation of Kenting, Cambric, Batiste, or Lawns.

The weaving of fine linen, introduced by Crommelin, was not attended with any great measure of success, despite the fact that large sums were expended in the spinning-schools to teach the spinning of fine yarns. The yarns were eventually produced, but no demand for fine cloth existed. A work written in the middle of the eighteenth century by a certain Robert Stephenson, linen manufacturer, entitled *An Inquiry into the State and Progress of the Linen Manufacture of Ireland*, contains valuable criticisms on the manner in which the linen-trade was conducted in Ireland during the first fifty years' existence of the Linen Board, and, coming from one who was himself successful in business, we feel that his remarks are worthy of all credence. It would appear from the best information which could be collected that, in the reign of Charles II., the yarn which the natives in Ireland spun was yarn known by the name of "one pound yarn," or from four hanks in the pound of statutable yarn down, which, according to present-day Irish counts, would be 48's lea; and it was found that, in

1754, nineteen out of every twenty spinners in Ireland were employed in producing the same counts of yarn, both for home consumption and export. It would thus seem that Louis Crommelin's original intention of establishing in Ireland the fine-linen industry, with which he was so intimately acquainted, did not take effect.

Irish linens were introduced into England free of duty. Foreign linens had to sustain a duty which was enforced to secure the interest on part of the National Debt. The table facing page 234, English section of this book, giving details of linen imported from foreign countries into England, with values and import duties paid for eight years, and covering a period of twenty-four years, goes clearly to show that, despite her freedom of importation, Ireland had by no means captured the English market. As a comparison, we give below the whole exports of Ireland in value of linen cloth, duty free, during the same years:—

Year ...	1730	1735	1741	1748
Value ...	£206,810	£426,339	£480,516	£543,291
Year ...	1751	1752	1753	1754
Value ...	£751,993	£621,600	£694,119	£806,060

Although the later figures show the exports to have increased fourfold during the period indicated, they do not give what one might reasonably consider an adequate return for the large sums expended by the Board of Trustees in fostering the industry. Most of the linens detailed in the list of foreign imports to England were suitable to the then manufacture in Ireland both in spinning and weaving, but there seemed to exist a want of coherence between the spinning and the weaving. Certain districts automatically produced yarns unsuitable to the weaving of those districts. For example, in the north certain sheetings and dowlas were woven from the hard spun yarns of the north, whereas it wàs contended that the plumpness and fulness of the yarns spun in the southern provinces made them more suitable. Again, in the north, where wages were dearer, tow-yarns were frequently used in weaving goods for the English markets, whereas the line-yarns of Connaught, Munster, and Leinster were equally cheap and proportionately better, the consequence being that one branch of the English trade was almost lost; that is, low yard-wide cloth for printing, for which there was a large demand. There was a most extensive consumption in England and in the Plantations for a coarse sort of twilled linen, called drabs, for men's frocks, and also for numerous other kinds of coarse goods, which were entirely supplied from Germany, although in those low-priced articles the duties to foreigners were heavy, being frequently at so much per yard. The statute of Anne, to which reference has been made, failed to effect its purpose of confining the weaving of linens to those weavers who had served five years' apprenticeship. At the same time apprenticeship was fully encouraged, and in the course of some twenty years the journeymen became formidable enough to consider the advisability of regulating their trade by a combination in conjunction with the bleachers and calender men or lappers, their aim being to regulate prices and discourage what they termed unskilled labour. From the manufacturers' standpoint this movement was looked upon with great disfavour, more especially as the combinations in the southern provinces went so far as to disapprove of manufacturers entering upon any new branch of the linen trade without permission, after consultation, from the weavers. To remedy this, it was proposed to insert the following clause in the next linen bill: "That any weaver, bleacher, calender man, or lapper that acknowledges himself sworn into a combination, or unlawfully meets with others to settle prices, or is found in a mob, on what is deemed by the weavers a turn-out day, or collects or pays money for any such purpose, shall be liable to six months' imprisonment and publicly whipped; and anyone putting himself at their head and administering an oath, or being present at, or giving, or any ways aiding, assisting, or requiring the oath of any of the aforesaid workmen, shall be deemed guilty of felony." Thereafter is the following comment: "This done, manufacturers may carry their schemes into execution without having any more to argue with than the workmen employed, and without being subject to the threats and menaces of thousands, as is often the case at present, and the poor and industrious will be left at liberty to work for the support of their families, in such branches of the manufacture and for such prices as best suit their purposes, without endangering their lives by the insults of lawless miscreants, as is the general case now, under pretence of their working at (what they term) under-prices."

The foregoing serves to show how soon dissensions betwixt employer and employed sprang into existence—dissensions which mutual good understanding and patriotism might have avoided. The exceedingly drastic law proposed by the manufacturers to redress their grievance reads strangely when we consider the power and influence attained by trades-unionism to-day.

According to James Hill Dickson, a web or piece of linen was the work of a man from sixteen to eighteen days, and a weaver often could have for his labour 2/4 to 2/8 per day. These would be exceptional earnings. In Young's *Tour in Ireland*, the average daily wage earned by a weaver of fine linen is placed at 1/6 per day, and of coarse linen 1/1. This was in 1776. The labourer paid £1 1s. a year for his cottage rent; provisions were cheap, especially fish—salmon 2d. a pound, plaice 3d. to 4d. a pound, whiting 4d. a dozen. In speaking of labour conditions in Peckenham, Young says that "Great numbers of families are supported by neighbouring lakes, which abound prodigiously with fish. A child with a packthread and a crooked pin will catch perch enough in an hour for a family to live on a whole day, and as many as five hundred children would be seen fishing at the same time, there being no tenaciousness in the proprietors of the land about the right to fish. Besides perch, there was pike upwards of five feet long, bream, tench, trout of ten pound and as red as a salmon, and fine eels. All these were favourable circumstances and were very conspicuous in the numerous and healthy families." At Belfast, potatoes were 9d. a bushel, and on these and milk the poor entirely lived when oatmeal was above 1d. or 1¼d. a pound. Beef cost 2¾d., mutton 3d., and butter 5d. a pound. Geese 1/2, turkeys 1/–, and chickens 2½d. each. It would seem, therefore, that the daily wage of 1/– or more would be ample for ordinary wants; but, unfortunately, in many instances the actual money never passed into the possession of the wage-earner. When Young has spoken of the cheap food and healthy families in Peckenham, he then reverses the medal and says: "They are ill-clothed and make a wretched appearance, and, what is worse, are much oppressed by many who make them pay too dear for keeping a cow, horse, etc. They have a practice also of keeping accounts with the labourers, contriving by that means to let the poor wretches have very little cash for their year's work. This is a great oppression; farmers and gentlemen keeping accounts with the poor is a cruel abuse; so many days' work for a cabin, so many for keeping a horse, and so many for a cow are clear accounts which a poor man can understand well, but further it never ought to go; and when he has worked out what he has of this sort, the rest of his work ought punctually to be paid to him every Saturday night."

We find, however, that matters with the linen weavers were better in the north than in County Westmeath. Still quoting from Young, we see that, in Lurgan, they found time for healthy recreation. It seemed they kept packs of hounds: " Every man one, and joining, they hunt hares. A pack of hounds is never heard, but all the weavers leave their looms and away they go after them by hundreds." Young complains of the fact that " the weavers often turn labourers, by which means they are bad hands and can only do the very coarsest work." He also says that, " in general, they are very bad farmers, farming being but the second consideration, and it has a bad effect on them, stiffening the fingers and hands, so that they do not return to their weaving so well as they left it."

Wakefield, in his *Account of Ireland*, writing, in 1808, of this same town of Lurgan, says that men by weaving make 11d. to 13d., the price not having risen for twenty years, and day labourers earn 16d. There would seem here little inducement for men to continue at the loom when out-door labour was abundant. From the same source we take the following set of queries and answers in regard to Antrim and Monaghan:—

Queries in regard to Antrim :—

Q. 1*st.* What work is performed and how much money is earned by a female spinner in a week ?

A. A female will spin five hanks, the price for which is 2/8½d.

Q. 2*nd.* How much work is done and how much money earned in the same time by a weaver ?

A. Will weave nine yards, and for a sixteen hundred web receives 6/4.

Q. 3*rd.* What number of spinners will a loom employ?

A. Four.

Q. 4*th.* What is the difference of the earnings of those employed in the manufacture of coarse and of fine linens ?

A. Very little.

Q. 5*th.* What quantity of food is consumed by a manufacturing family ? This query can be easily answered by ascertaining the number of the family, and the average weight of potatoes consumed per day.

A. If there be six in a family, the consumption will be—

	s.	d.
Potatoes, 3½ bushels, @ 1/- ...	3	6
Herrings, 2 per day, @ 1d.	1	2
Buttermilk, 9 quarts	0	3
Salt, 1 lb.	0	1
	5	0 per week.

Answers to the same queries in Monaghan:—

A. to Q. 1. The average of spinners in this district will spin about five dozen per week of yarn from a pound of flax. Women who engage to do this get for it their board, and from £3 to £3 10s. wages per year, or if they spin at their own houses, they are allowed about six pence per dozen; that is, they will earn about three shillings per week. Hence it is cheaper to give out flax to be spun, than to hire servants to perform that work, unless a woman can be boarded for less than three shillings per week.

A. to Q. 2. It requires about three weeks to weave a web (25 yards), and the pay for it is on an average £1; hence the weaver earns 6/8 per week. Weavers who do this are called good and industrious workmen.

A. to Q. 3. Three, at about the rate of spinning stated in the answer to question one.

A. to Q. 4. Most is earned by manufacturing that kind of cloth for which there is the greatest demand in the market at the time.

For answers to the 5th, 6th, and 7th queries, see those in regard to Antrim.

From the foregoing spinning prices it will be seen that it is cheaper to get the yarn spun in cottages: this is due to the fact that time which would be otherwise lost can be spent at the wheel. The following, from Franklin's political works, bears upon this subject: "There can be no doubt but all kinds of employment that can be followed without prejudice from interruption; work that can be taken up and laid down often in a day without damage, such as spinning, knitting, weaving, etc., are highly advantageous to a community, because in them may be collected all the produce of these fragments of time, that occur in family business, between the constant and necessary parts of it that usually occupy females, as the time between rising and preparing for breakfast, between breakfast and preparing for dinner, etc. The amount of all these fragments is, in the course of a year, very considerable to a single family; to a state, proportionably highly profitable; therefore it is wise, in this case also, to follow that divine direction, 'gather up the fragments, that nothing may be lost.' Lost time is lost substance; it is therefore lost treasure. Hereby, in several families, many yards of linen have been produced from the employment of those fragments only, in one year, though such families were just the same in number as when so employed." The criticism of Arthur Young, regarding the disadvantage to the industries of agriculture and weaving by one man pursuing the two, was agreed to by others at the time. Adam Smith, in his *Wealth of Nations*, writing directly on this subject, says: "The advantage which is gained by saving the time commonly lost in passing from one sort of work to another, is much greater than we should at first view be apt to imagine. It is impossible to pass very quickly from one kind of work to another that is carried on in a different place, and with quite different tools. A country weaver, who cultivates a small farm, must lose a good deal of time in passing from his loom to the field, and from the field to the loom. A man commonly saunters a little in turning his hand from one sort of employment to another, and this renders him almost always slothful and lazy, and incapable of any vigorous application even on the most pressing occasions."

Dr. Crumpe, in his admirable essay on the best means of providing employment for the people, which was published in 1795, and to which was adjudged the prize proposed by the Royal Irish Academy for the best dissertation on that subject, quite shares the same opinion. He speaks of the manufacturing parts of Ireland, and particularly in Ulster, in which the progress of agriculture is considerably injured by every manufacturer being possessed of small portions of land, and acting both as farmer and artisan. He urges the division of labour and the confining of the exertions of workmen to one particular branch of business, as it increases the skill and dexterity of the workmen, in whatever species of labour he is solely employed, and tends to augment his capital more rapidly than can be effected by a varied and desultory attention to a diversity of occupations. These remarks of Dr. Crumpe were made mainly in the interests of agriculture, and the serious censure of Young pointed in the same direction. The latter says: " View the north of Ireland, and you behold a whole province peopled by weavers; it is they who cultivate, or rather beggar, the soil, as well as work the looms. Agriculture is there in ruins; it is cut up by the roots, extirpated, annihilated. The whole region is the disgrace of the kingdom. All the crops you can see are contemptible, are nothing but filth and weeds; no other part of Ireland can exhibit the soil in such a state of poverty and desolation. But the cause of all those evils, which are absolute exceptions to everything else on the face of the globe, is easily found. A most prosperous manufacture, so contrived as to be the destruction of agriculture, is certainly a spectacle for which we must go to Ireland. It is owing to the fabric spreading all over the country, instead of being confined to towns. There, literally speaking, is not a farmer in a hundred miles of the linen country of Ireland. The lands are infinitely subdivided; no weaver thinks of supporting himself by his loom, he has always a piece of potatoes, a piece of oats, a patch of flax, and grass or weeds for a cow; thus his time is divided between his farm and his loom. Where agriculture is in such a state of ruin, land cannot attain its true value, and, in fact, the linen counties, proportioned to their soil, are lower let than any others in Ireland. If I had an estate in the south of Ireland, I would as soon introduce pestilence and famine upon it as the linen-manufacture, carried on as it is at present in the north of the kingdom."

An interesting question originated about this time, one often since discussed; namely, the health of operatives employed in town factories, compared with that of those working in their own homes. Cotton-spinning had just been introduced on the factory system, owing to the inventions of Arkwright, Hargreaves, Crompton, and others, and although Manchester and other Lancashire towns took the lead, Belfast was in no way backward. Cotton-spinning on wheels had been introduced, in 1777, by the Belfast Charitable Society, to employ the children in the home of that Society, and thereby a trade in cotton yarns was established. Shortly after the introduction of machinery, we find several small cotton spinning-mills running in Belfast, some propelled by horse power, others, on a more extensive scale, by water power. Thus comparisons of the health of the operatives were available. Dr. Burrowes, speaking of the injuries which farming manufacturers occasion to agriculture, states that the only ground on which their existence appears defensible is the superior degree of health such workmen must enjoy, compared with those accustomed to constant confinement; and he mentioned that he himself lately observed the most striking contrast between the squalid, pale, and sickly artisans of Manchester and other parts of England, and the robust weavers of Ulster. On the other hand, Wakefield is very sceptical respecting the prevailing idea of the unhealthiness of a sedentary life, and the mischief arising from concentrated population. He states that the cotton-manufacture has, by its influence, diffused happiness and prosperity in and around Belfast. This was in 1812, when Belfast possessed a number of cotton-mills. The condition of the weavers' houses in County Down, taken from the Rev. Mr. Dubourdieu's survey of that county, published in 1802, may be taken as typical of any weaver's house in Ulster.

"They consist mostly of a low cottage, the dwelling-house, which contains a kitchen and two or three rooms on the ground floor opening into one another, without any apartments overhead. Had Parliament made every house that had two fire-places pay for one at the usual rate, little loss would have accrued to the revenue, as very few would, in that case, have built up a second, but the additional 2/8½ on one side, paid for two hearths, and the temptation of not paying anything by having but one, have operated both against the revenue and the comforts of the people, who, for so trifling a consideration, would have deprived themselves of the satisfaction of a second fire, and consequently no longer possess the advantage of ventilation, which from an open chimney they formerly possessed in their bedrooms, in which a circulation of air is not at present known, the vent which produced it, in concert with the casual opening of the door, being now closed. Besides, the windows are seldom made to open, and where they have been made to open with that intention, they are so often out of order, or have so many things laid upon the inner sash, that, being a work of time to accomplish, it is seldom attempted. It must be in a great measure owing to the closeness of these apartments, to the total extinction of fresh air, that fevers, when once got into a family, seldom leave it until they have attacked every individual."

Despite the removal of the hearth-tax, and the lapse of a century, the above description would serve to-day. Truly medical science has arrested the spread of disease by compulsory isolation of fever-stricken patients, but the conditions conducive to disease remain unaltered in many homes in Ireland.

Dubourdieu mentions the unhealthy condition of the weavers, and ascribes this to their sitting so much at the loom. Wakefield ascribes it to the miserable cabins in which they are cooped up, without a free circulation of air. We would gather from reading the very different accounts of the physical appearance of the Ulster weavers, the one by Dr. Burrowes and the other by Dubourdieu, that the former speaks of the farmer weaver, a great portion of whose time is spent in healthy out-of-door labour, and that the latter treats of him who spends his whole working time at the loom. Wakefield argues that sedentary labour in healthy surroundings is not hurtful, and recommends factory labour under such conditions. Let us consider for a moment what those conditions in factories were a hundred years ago, said to be so much healthier than in home surroundings. In 1819, some ten years after the time of which we treat, a Factory Act was introduced, called the Cotton Mills Act, which fixed the working age of children at nine and their actual working hours at seventy-two per week. No action whatever was taken in the matter of adult labour. Previously, in 1802, Sir Robert Peel, the elder, himself a cotton manufacturer, passed the Morals and Health Act, " For preservation of the health and morals of apprentices and others employed in cotton and other mills, and cotton and other factories." This Act was necessitated on account of the fearful ravages of epidemic disease amongst the workers, especially children, brought about by scarcity of food and most unhealthy conditions. The children treated of in this bill were pauper children, sent from the rural districts to supply the need of labour in the newly-born factories. The bill prohibited their employment from nine o'clock at night to six in the morning, but did not extend to children residing in the neighbourhood. The very wording of these Acts of Parliament shows the awful conditions which they made legal, and gives one a conception of the enormities which must have existed before they were passed. Lord Sheffield, writing in 1785, mentioning the newly-erected cotton-mills at Prosperous, in Kildare, also at Selbridge and Balbriggan, says: " The pleasure of seeing children advantageously employed in these works, was greatly diminished by learning that part of them work all night, even so young as five or six years old, and the wages so low as sixpence per week, and from that price to thirteen pence per week in some places."

Let us briefly trace the extensions of the Factory Act. In 1825, a partial holiday was established on Saturday by Sir John Hobhouse's

Act. In 1831, the Cotton Industry Act prohibited night-work in factories for persons between nine and twenty-one years of age; the working day for persons under eighteen was limited to twelve hours, and on Saturdays nine. Then came the Reform Bill, and the working man had more at his command. In 1833, came an Act prohibiting night-work to young persons in all textile factories, and reducing the hours of labour of children from nine to thirteen years, to forty-eight per week, and young persons from thirteen to eighteen, to sixty-eight hours per week. Some provision was also made for school attendance, which heretofore had been completely neglected. The children were worked in relays, so as to admit of, at least, some education. This educational system was extended, in 1844, by the alternate day system. In 1850, a uniform working day from 6 a.m. to 6 p.m. was established, with 1½ hours for meals. In 1861, Lord Shaftesbury's Commission brought in a valuable report on the health conditions of factories, this being looked upon by the employers with favour, as the advantages of good sanitary surroundings were obvious. Various Acts were passed based on this report, and having in them special references to certain trades considered by their nature unhealthy. A Royal Commission, in 1876, reported favourably of the results, but recommended large changes. These recommendations resulted in the great Factory and Workshop Act of 1878, which reduced the hours of labour in textile factories to fifty-six per week, and dealt with the following: (1) Sanitary provisions, (2) Safety, (3) Employment and meal hours, (4) Holidays, (5) Education, (6) Certificates of fitness for employment, (7) Accidents.

Inspectors were empowered to see that all buildings were kept in a healthy condition. Dangerous machinery had to be protected, and no children or young persons allowed to clean moving machinery. Employment of children—viz., those under fourteen—to be for half-time only. The following holidays were made compulsory: Christmas, Good Friday, and eight half-holidays. Employers must obtain a weekly certificate of school attendance for each child. Medical certificates of fitness for employment are required up to sixteen years of age. Notice of accidents must be sent to the inspector. This great statute, of which the above is the briefest summary, is wide in its scope, and factory inspectors have the power of bringing into operation new devices for improving the health conditions and sanitation of buildings. In this they are greatly aided, and indeed forestalled, by the employers, who, even apart from humanitarian motives, are fully alive to the advantages derived from healthy operatives; so that, at the present day, we find the factory as wholesome as modern science can effect. Added to this, we have the Employers' Liability Act of 1880, the Workmen's Compensation Act of 1897, further extended in 1900 and again in 1907, while the weaver, labouring on his own account at the loom, is to be found to-day in his dwelling under conditions which existed a century ago.

Before passing from the subject of weaving, we must refer to one of the most important inventions ever brought to bear upon the loom. We allude to the fly-shuttle, invented by John Kay, of Bury, in Lancashire, in 1733. Several authorities place the date of this invention at 1738. We have Kay's patent specification, dated May 26th, 1733, before us, and as such specifications in those early days were terse and to the point, involving no dexterity to avoid infringement, we quote it in full: "This invention relates to weaving, and consists in a new invented shuttle for the better and more exact weaving of broad cloths, broad bays, sail cloths, or any other broad goods, woollen or linen, which shuttle is much lighter than the former, and by running on four wheels moves over the lower side of the web or spring on a board about nine feet long, put under the same and fastened to the layer, and which new contrived shuttle by two wooden tenders, invented for that purpose and hung to the layer, and a small cord commanded by the hand of the weaver, the weaver sitting in the middle of the loom, with great ease and expedition by a small pull at the cord casts or moves the said new invented shuttle from side to side at pleasure, and also strikes the layer by his pulling it in the middle uniformly over the piece, making it unavoidably even and much truer and better than by any method heretofore used." This modest specification does not claim all the advantages the invention gave to the weaving industry. Before that time, and for many long and sad years afterwards, sad to the poor weaver, the hand-shuttle was used, which was thrown by the weaver from side to side of the loom. This involved an exceedingly irksome and physically injurious bending forward posture, to which, as much as to sedentary occupation, much of the ill-health of the weavers must be attributed. In weaving broad cloths of any material two men had to be employed at the loom, one being unable to throw the shuttle the full distance. These two disadvantages were obviated by Kay's invention, and, besides, almost double the quantity could be produced even in narrow goods where formerly only one man was necessary. This latter item at once condemned the new shuttle in the eyes of workers; the usual persecutions and riotous behaviour occurred; and Kay, for safety's sake, was obliged to leave the country, and henceforth lived, until his death, in exile. This invention of Kay's was adopted by the woollen weavers at an early date, but was not introduced into cotton-weaving until about 1760. In Ireland, in the linen trade, its introduction must have been at a much later date. Mr. Stephenson, himself a linen manufacturer, makes no mention of it in his various reports, and not till 1808 do we find any decisive action taken by the Linen Board to establish this important device. In their report of that year they state: "The introduction of the fly-shuttle having reduced the labour of weaving linen so as to render it an occupation not unfit for females, and the Trustees having deemed it expedient to encourage its being employed, the following bounties were offered for that purpose." Some of the bounties had been offered the previous year, and consisted in a loom, or a loom and a spinning-wheel, to her who would produce the most linen in a sound and workmanlike manner in each parish. A caution was inserted that if any loom granted be at any time used without the fly-shuttle, the loan of it would cease.

Mr. McCall, writing of this fly-shuttle and its introduction into Ireland, says it was brought in by Mr. McMullan, a gentleman engaged in the educational department of the Moravian Colony, at Gracehill, near Ballymena. He further adds that an ingenious person named Kelly, residing in Lisburn, became celebrated as a maker of these shuttles, and the name Kelly stamped on each one was a guarantee. The fly-shuttle was generally used in linen-weaving in Yorkshire before we have any notice of it in Ireland, and its tardy introduction into Ireland was probably one of the reasons why so much narrow linen was woven. The broader the piece the greater the exertion on the part of the weaver in the old-fashioned loom. Not many years ago the writer went into a shop in a small Bavarian village, and was surprised to find a number of hand-shuttles exposed for sale. One he brought home with him, and placed it in the Municipal Museum, Belfast, as a "living fossil."

Another and very important invention was that known as the Jacquard machine in damask weaving. Its introduction into Great Britain and Ireland took place at the close of the period of which we write. Long previous to the invention of the Jacquard machines, damasks and other figured fabrics had been woven. The patterns were at first produced by the operation of a number of treadles which raised the warp yarn as required, and which were worked by the feet of the weavers. Then the draw-boy was instituted. This boy raised the yarn through the medium of pulleys. Draw-boys were taught to read the designs before being entrusted with their work; their employment was of great advantage to the weaver, his attention being undivided and the work was greatly expedited. Jacquard's most ingenious and original invention, in its turn, displaced the draw-boy. Although originated in 1801, it was many years before the silk weavers of his native town, Lyons, would introduce it, owing to the stupid prejudice of the age; but he was more fortunate than Kay, and lived to see his machine in universal use there.

The itinerant men, amongst their other duties, were directed to examine cloth and report any defects. These defects were undoubtedly more numerous than the men could conveniently deal with, and in course of time became so alarming that it was considered advisable to appoint special examiners. In the Linen Bill of 6th George I., a clause was inserted empowering the Trustees to appoint persons to examine and measure every piece of linen cloth offered them; and if such cloth should appear merchantable, and according to the laws for regulating the linen-manufacture, then, and not otherwise, such person appointed to be a lapper may lap and stamp or seal the same, for which such lapper may take 2d. and no more, unless he beetle the same, and then 1d. more. If the lapper stamped any piece of goods not merchantable, or marked the same with a greater number of yards than the piece contained, he could be fined £1 for every piece so marked. No person was allowed to sell or expose for sale any white linen cloth, not marked or stamped, under penalty of 1/- for each piece. A penalty of £50, and of standing in the pillory for two hours in the forenoon, was the punishment for counterfeiting seals or stamps.

Armed with this authority, the Trustees made a contract with Mr. Hartwell, a graver, for sets of stamping tools at the price of £1 6s. the set, consisting of a stamp with a harp and crown, another with the name of the lapper; and a tin box with fifteen figures, together with a socket for them. They appointed a committee to draw up regulations and instructions for the lappers, which were agreed to with some amendments, and came into force early in the year 1720. The following is the substance of the nineteen regulations made: "If any remarkable difference be found in the fineness of the cloth of the same piece, they must make the lap yard of the coarsest part; but in case the weft should be put in with the intention of defrauding, the buyer shall not presume to seal or lap the cloth. No moist or damp cloth to be lapped for fear of mildew. No cloth to be lapped which is made up with chalk-dust or flour in order to make it look whiter than that it really is; and if any such cloth be brought to them, they are to seize it and carry it before the next Justice of the Peace, and, upon conviction, cut it into pieces of seven yards in length. The same is to be done with any cloth which they find bleached with lime. No cloth sewed together to be lapped or stamped. They are to view, examine, and measure all cloths brought to them, and beetle the same at the statutable rate if desired, and put the stamp name of the lapper and exact number of yards at each end of the cloth in such way that the figures and letters be legible. All cloths to be stamped with lamp black and oil only. Every lapper to keep a register of all the several sorts of cloths he laps, with the number of yards, day of the month and year, the names of the persons bringing them, or for whom he laps, and place of their abode, and return to the Board before the 1st November annually a fair copy of such register. Any difference between the lapper and the person bringing the cloths to be determined by the next Justice of the Peace or Chief Magistrate of the Corporation. No lapper to use any means of straining the cloth or to put his stamp on any cloth he has not himself measured. Selvages to be brought even from end to end, so that the true breadth may be seen. No linen cloth to be lapped or sealed that shall not be half an English ell, or twenty-two inches and a half broad, at least, unless they be linen cloth made in imitation of Kenting, Cambrics, Batistes, or Lawns."

Regulations were also made respecting the length and breadth of diapers, bed ticks, and canvas or sail-cloth. No linen cloths (except diapers, damasks, or huckabacks) to be sealed unless they have a very coarse thread, coloured black, through every two hundred threads of the warp, so as to distinguish the number of hundreds of threads in the breadth, and also another coarse coloured thread to be run within less than one quarter of an inch of the former through every forty threads of the warp, so as to distinguish the number of scores of threads. This latter was in accordance with the statute of the

9th of Queen Anne. These regulations give one an idea of the abuses existing. By an Act of the 7th of George II., power was given to the Trustees to appoint lappers to examine and stamp all green or unbleached linen cloth. When the regulations and instructions were completed, the Trustees issued a form of commission for the public lappers, which, after reciting the various clauses of the Act of George I. referred to, entitled "An Act for the better regulating the buying and selling of yarn and cloth and for preventing frauds and abuses," proceeded to give full instructions to the lapper appointed and licensed. Five hundred copies of the instructions and commissions were printed, and a bond to be entered into with lappers agreed upon. The fine payable by him or his sureties in case of maladministration of the trust was inserted when the bond was completed. A form of certificate was also printed to be used by the applicant, setting forth that he was well skilled in the making and bleaching of linen cloth, and sufficiently qualified to observe and prevent frauds and abuses committed in the making and bleaching of linen cloth, and further stating that he was a man of fair character and good reputation in his dealings. This certificate was signed by five weavers, bleachers, or dealers in linens. A further document was required from a Justice of the Peace in the vicinity, certifying that he had diligently inquired into the character of the applicant, and also into the characters of the persons subscribing to the certificate, finding the latter to be men of good reputation and credit. It was then resolved that any persons making application to the Board to be lappers "shall send up certificates of their qualification in the above form." Besides the public lappers appointed, owners of bleachworks appointed, if thought fit, lappers in their own works. Seemingly care was taken by the Trustees in the matter of choice, for we find in the minutes of February 6th, 1720, the following: "The certificates of Neal Campbell to be a lapper in the county of Antrim being read,—ordered, that a letter be writ to William Moore, Esq., to desire him to inform the Board why he would certify for a person so notorious for bleaching with lime." This terror of lime-bleaching had early fastened upon the Trustees. Perhaps the idea of setting a thief to catch a thief explained Moore's action. The first lapper appointed was a certain Thomas Hutcheson, of Armagh, who gave security of £100 for the due execution of his office, and paid for his seals. Next came Robert Weilly, owner of a bleach-yard in Ballymena, who gave security for £100 for due performance of his office, paying for his seals; and the said Weilly, having proposed Amos Settle for his security, a commission and instructions were signed for him. Then William Deane was appointed to be a lapper in the city of Dublin on giving security of £500 for the due execution of his office, and paying for the seals. These, the first lappers, were appointed on the 1st, 3rd, and 4th of February, 1720, respectively. On the 6th of the same month the case of Neal Campbell, already mentioned, was discussed. The usual security demanded was £100.

Very frequently the yard-stick used in measuring cloth was simply cut from a hedge, often not approximating the proper measure. The Board, therefore, instructed Mr. Gabriel Stokes, mathematical instrument maker in Essex Street, Dublin, to make a number of yard-sticks to be distributed among the public measurers. He was also instructed to make a brass standard yard for the use of the Board, consisting of thirty-six inches, exactly subdivided into tenths, and in accordance with the standard of the Chamberlain of His Majesty's Exchequer in England. For over 40 years this system of measuring, stamping, and lapping remained, during which time many abuses crept in. We find, as early as September, 1721, within eighteen months of the adoption of this system, an advertisement was published by the Trustees, in which was set out that information had been received at the Board that several lappers had marked the cloth of a greater length than the pieces contained, and had made the lap yard of the finest part. Public notices were given to buyers of linens, particularly to English buyers, to notify the Board of any complaint, so that the offenders might be prosecuted and dismissed, and that restitution might be made in the best manner. Such abuses as these—not by any means rare—were evidently the result of collusion between weaver and lapper. Again, we find complaints made that the webs were marked short of their actual length. Any advantage from such fraud was reaped by the buyer. The Board, however, settled this question by refusing to hear any complaint made against lappers for shortness of measure, where the cloth so complained of had not been measured in the presence of the seller. The Trustees seem to have courted complaints and made full investigation into them. The minutes of their proceedings testify to the numerous abuses dealt with, and the care taken to avoid them. We give here some of the many complaints. Cloth complained of, which on washing proved to be rotten; cloth which, after being made into shirts, on the first washing cut and was full of holes. Cloth stamped which was damp and full of chalk-dust; cloth one shilling per yard worse in the inside than in the lap yard, stamped with old seals; bleached with lime, and rotten; ill-woven and with many frays in the inside, having breaks concealed in the inside; rotten in one part; the lapper having employed his wife to go about the country and stamp all cloths without distinction; cloth lapped with the coarsest of the cloth inwards; cloth sealed which was mildewed and unmerchantable or full of holes and overdrawn; cloth stamped, having a number of small brown spots, many of which appear to be burned; and so on.

Such complaints appear continually. Several Acts were passed in the Irish Parliament, each more stringent than its predecessor, and a select committee of the House of Commons was appointed to investigate and report, yet complaints came in greater numbers. In 1762 a new order was established. Here we quote from Mr. McCall's work: "Mr. John Williamson, a bleacher in Lambeg, took the matter up. A Committee was appointed to draw up the leading clauses of a bill to be presented in Parliament. The trade, it was said, had been cramped, and buyers had been insulted, by the overbearing conduct of many of the lappers. The idea was that the duties should be performed by men of high character, whose reputation for integrity would be the best guarantee for their correctness and efficiency. The duties of these officers should consist in examining each web, fold by fold, to see that it had been honestly woven throughout, to measure it, and then to place their official seal on the outer fold, notifying the details of length and breadth. A deputation was appointed, and went to Dublin to lay the matter before the Linen Board, and, if approved, before Parliament." In August, 1762, a law came into force authorising the Trustees to appoint "fit and proper persons, manufacturers and others," to inspect the linens about to be sold in public markets. Lappers ceased to be recognised, and the "Seal-masters" took their place. At first this new regulation incited wild opposition on the part of the weavers, riotous mobs assembled at the market-places and stopped all business. Williamson's house in Lambeg was partially wrecked, and his life only saved by concealment; but gradually the discontent disappeared, as it was seen that the duties of the Seal-master were found to be of equal advantage to the weaver, the draper, and the bleacher. For some years the sealing of linen proved a fairly effectual hindrance to fraud, and an amount of confidence was inspired, which proved of benefit to the trade, not alone at home, but in the English markets as well. The weavers, who had formerly caused the riot, were gracious enough to admit their error, held meetings, and passed resolutions of content, which they duly forwarded to the Board of Trustees, with expressions of regret at their unwarranted conduct. As a matter of fact the weavers were much better off under the Seal-masters, for many of the drapers had taken the power of measurement into their own hands, and besides demanding a yard or two for nothing in each web, measured the cloth with a yard-stick of their own somewhat longer than the standard size. The weavers ended up their document, which they presented to the Trustees, by thanking God and the honourable Board for being released from these unjust and heavy burdens. For some years matters in respect of sealing seem to have gone right, but abuse again gradually made its way, and linen buyers began to make strong complaints against the conduct of the Seal-masters. It was found that Seal-masters were bribed by weavers to mark false measurements, the former being guaranteed by the latter against loss by any fine imposed, if detected. The Seal-masters often deputed their work to wretchedly paid men, who were susceptible to bribery, and who lent their seals to unauthorised persons and were guilty of other irregularities. Mr. Kirk, of Keady, writing, as late as 1821, a report, which he sent to the secretary of the Linen Board, speaks very strongly of the abuses existing in the market of Armagh, which he stated had long been considered the largest inland market in Ireland. He stated that a quantity of goods were brought to market by men who were called manufacturers, persons who brought the yarn, employed a number of weavers to have it made into cloth, and then brought the cloth to market in considerable quantities to sell. These manufacturers, he stated, were, in general, Seal-masters; but when they were not, it was their usual practice to stamp on each piece of their cloth the length and breadth thereof at home, and then to bring them to the market, and, previous to its commencement, get a Seal-master to affix his seal on whatever quantity they brought, without the Seal-master either measuring or examining them, the manufacturer guaranteeing at the same time, that in case of fine he would pay it, and, when fines were struck, this they almost invariably did.

And so in course of time it came to pass that the Seal-masters were dispensed with, as their predecessors the Lappers had been.

The change occurred in 1823, following a similar course which had been adopted in Scotland, and for very similar reasons. A natural and very healthy competition was the outcome, each manufacturer striving to maintain and strengthen his trade by the reputation of the goods he made.

Undoubtedly, at the beginning of the Linen Board's work, some sort of safeguard was necessary, but its continuance for more than *a century was absurd. The trade had surely outgrown such grandmotherly care.*

No guarantee of a fraudulent Seal-master could be so effective as the good repute an honest manufacturer would, of necessity, desire to achieve.

CHAPTER V.

The Bleaching of Linen

For a description of bleaching processes carried on in Ireland, during the period of which we treat, we have availed ourselves of contemporary treatises on the subject. The impurities in raw linen yarn, or linen cloth, are much in excess of those in cotton, being about 20 per cent. or more of the weight of the goods, against only about 5 per cent. in cotton. As a consequence, the treatment of linen is more tedious, and requires greater care. Potash was the medium used to disengage these impurities as cheaply and expeditiously as possible, without injuring the texture of the fabric. This potash was, at the time we write of, extracted from vegetable substances. Any vegetable matter derived from land sources, when burned in pits in the open air, results in more or less ash, which latter contains different mineral salts and a small portion of potash. To separate the potash from the other ingredients the ashes were put into ten or twelve times their weight of boiling water. By this means the potash, together with other saline substances, was dissolved, while the insoluble part fell to the bottom. The solution was then drawn off clear from the dregs and evaporated to dryness in iron pots; hence the name pot-ash. The potash was then freed from any organic matter it still contained by exposing it to the joint action of air and heat. The organic matter having been burned out, the potash changed from a dark grey colour to a pearly white, and was then known as pearl-ash, which contained from ten to twelve per cent. of impurities, mostly sulphate of potash; this latter being only soluble in about sixteen times its weight of water, while potash is soluble in its own weight, the impurity was easily removed. There remained still united with the potash, carbonic acid gas, which, however, did not altogether deprive it of its bleaching properties. It is now known that the purified product consists essentially of carbonate of potash, the constituents of which are the metal potassium, oxygen, and carbonic acid gas. The latter readily forms an insoluble compound with slaked lime, so that its removal from combination with the "potash" may be effected by adding slaked lime to the solution. This mode of removing the carbonic acid was first practised by the early bleachers, who had found that the resultant liquid was far more energetic in its action on the natural impurities of flax than a solution of the ashes of plants. Naturally, substances of little value were employed in the manufacture. In Ireland, the farmers burned their weeds every year in order to obtain the potash; and along the coasts a lucrative industry was carried on by burning sea-weed for the extraction of the alkali substance known as carbonate of soda. It is of interest to know that the word alkali is of Arabic origin, some authorities maintaining that Kali is the name of the plant from the ashes of which the alkaline substance was first produced, while others maintain that "Kali" means "pot," and the prefix "al" the thing in; hence we have "Alkali," or the thing in the pot. This explanation compares favourably with the origin of our own word "pot-ash."

Potash, in common with all alkaline substances, possesses an affinity for animal or vegetable substances of a fatty nature, such as suet, oils, resin, and certain gums, and, combining with these matters, dissolves them. Thus the potash, or alkali, from its solvent power on the impurities, dissolves and separates the part immediately exposed to its action; that is to say, the part which rests superficially upon the fibres of the linen cloth or yarn. It required ten to twelve or more repeated boilings at least, with alternate agency of the atmosphere, to separate the whole of the waxy matter, each successive boiling penetrating deeper into the material. A stronger alkali solution, which would expedite the process, would at the same time destroy the texture of the cloth. Each filament after the treatment with alkali still retained traces of colouring matter, so intimately united as to resist any further action upon it. This could only be completely removed by the slow and gradual influence of the atmosphere.

Dr. Francis Howe, of Edinburgh, wrote a work on bleaching in 1755, in which he describes the Irish and the Dutch methods in practice at the time. The latter will be found in "The Low Countries" section of this book. We quote from Howe's work the Irish method for both fine and coarse linens: "Having sorted the cloths according to their quality, they are steeped, rinsed, washed in the mill, and dried before boiling. In this process, boiling supplies the place of bucking, as it takes less time, and consequently is thought cheapest. It is done in the following manner:—200 lb. Cashub ashes, 100 lb. white Muscovy, and 30 lb. pearl ashes, boiled in 105 scots gallons of water for a quarter of an hour, makes the mother lye. The cloth boiler is then to be filled two-thirds full with water and mother lye, about nine parts of the former to one of the latter, so that the lye used for boiling the coarse cloth is about a third weaker than that used in bucking the fine. Such a quantity of cloth is put into the foregoing quantity of lye, when cold, as can well be covered by it. The lye is brought gradually to the boil, and kept boiling for two hours, the cloth being fixed down all the time that it does not rise above the liquor. The cloth is then taken out, and spread on the field and watered. As the salts of the lye are not exhausted by this boiling, the same is continued to be used all that day, adding, at each boiling, so much of the mother lye as will bring it to the same strength as at first. The lye, by boiling, loses in quantity somewhat betwixt a third and a fourth, and they reckon that in strength it loses about half, because they find, in practice, that adding to it half its former strength in fresh lye has the same effect on cloth. Therefore, some fresh lye, containing a fourth part of the water and the half of the strength of the first lye, makes the second boiler, as they imagine, equal in strength to the first. To the third boiler they add somewhat more than the former proportion, and go on still increasing gradually to the fourth and fifth, which is as much as can be done in a day. The boiler is then cleaned, and next day they begin with fresh lye. These additions of fresh lye ought always to be made by the master-bleacher, as it requires judgment to bring succeeding lyes to the same strength as the first. When the cloth comes to get the second boiling the lye should be a little stronger, about a thirtieth part, and the deficiencies made up in the same proportion. For six or seven boilings, or fewer, if the cloth be thin, the lye is increased in this way, and then gradually diminished till the cloth is fit for souring. The whitest cloth ought always to be boiled first, that it may not be hurt by what goes before. In this process, if the cloth cannot be got dry for boiling, business does not stop, for, after the coarse has dreeped on racks made for the purpose, it is boiled, making the lye strong in proportion to the water in the cloth. The common method of souring coarse linen is to mix some warm water and bran in the vat, then put a layer of cloth, then more bran water and cloth, and so on till the cave is full. The whole is tramped with men's feet and fixed. One thousand yards of cloth, yard broad, require betwixt four and six pecks of bran. The cloth generally lies about three nights and two days in the sour. Others prepare their's twenty-four hours before, by mixing the bran with warm water in a separate vessel, and before pouring it on the cloth, they dilute it with a sufficient quantity of water. After the cloth is taken from the sour, it ought to be well washed and rinsed again. It is then given to men to be well soaped on a table, and afterwards rubbed betwixt the rubbing boards. When it comes from them it should be well milled, and warm water poured on it all the time, if conveniency will allow of it. Two or three of these rubbings are sufficient, and the cloth very seldom requires more. The lye, after the souring begins, is decreased in strength by degrees, and three boilings after that are commonly sufficient to finish the cloth. Afterwards it is starched, blued, dried, and beetled in a machine made for the purpose, which supplies the place of a calender, and is preferred by many to it."

The above, in brief, is a description of the old bleach methods, which occupied an entire summer to complete.

In 1756, Dr. Howe introduced dilute sulphuric acid for souring, which practically shortened the duration of bleaching by one half. The discovery by Scheele, of Chlorine, in 1774, led to important changes in bleaching. Experiments with this gas by Berthollet, in 1785, proved that it possessed powers of destroying colouring matter in fabrics. This distinguished chemist read a paper on the subject before the Academy of Sciences in Paris, and subsequently the system was adopted on an industrial scale, and introduced by James Watt into Scotland. The difficulty at first experienced in exposing the goods to be bleached to the direct action of the pungent gas, with consequent injury to the health of the operatives, was first overcome by passing the gas into a solution of "potash," which had been treated with lime, the liquid obtained being known as "eau de Javelle." Owing to the expensive nature of potash in those days, however, the new bleaching liquid was only used to a limited extent. A few years later, Mr. Charles Tennant, of Glasgow, substituted milk of lime for potash, and patented his bleaching liquor. Finally, in 1799, Tennant's partner suggested the use of slaked lime for absorbing the gas, the product being introduced into the market under the name of Chloride of Lime, its price during the first few years of production being over £100 per ton. This is the bleaching-powder of to-day. The lime is simply used as a safe vehicle for conveying the chlorine, and does not in any way enter into the bleaching operations. The bleaching powder, on being dissolved in water, yields a solution which consists essentially of a compound of chlorine, oxygen, and lime, the latter being inert in so far as active bleaching is concerned. The use of lime in bleaching before this time must, therefore, not be confounded with *chloride* of lime, lime being an alkali. Its detergent properties were known, but its immediate application to linen, either by itself or mixed with potash, had the effect of destroying the texture of the cloth. This was early guarded against by enactment, for we find in the 2nd Anne a law passed prohibiting the use of lime in whitening or bleaching linen cloth, the offender to forfeit £5, and the cloth or yarn so bleached with lime to go to the informer. Seemingly this law was broken, for we find in the 4th of George I. a law passed for the discovery of the offenders. Any Justice of the Peace or Chief Magistrate was empowered to summon any person to appear before him, to be examined on oath touching what he knew of any person using lime in bleaching linen cloth or yarn; and if such person refused to be examined, he was committed to the house of correction, to be whipped and kept to hard labour for thirty days. Any itinerant man or other person appointed by the Trustees was empowered by this Act to enter into any bleach-yard, at any hour of the day, and if any lime were found, or it appeared that any lime had been mixed with lye, the tenant in possession of the bleach-yard, and every person working in the buck-house, incurred the penalties inflicted on persons using lime in bleaching, and the constable who, by virtue of any warrant, should seize such cloth or yarn, was allowed by the prosecutor at the rate of 2/- per pound value of the goods seized, and any constable neglecting or refusing to execute such warrant was liable to a fine of £5 for each offence. Mr. McCall, in *Ireland and Her Staple Manufactures*, gives full details of the efforts made by John Williamson, bleacher, of Lambeg, to legalise the use of lime in 1762. In that year a bill had been framed, one of the clauses of which read: "That any bleacher who used improper materials was to be adjudged guilty of felony and to suffer death."

A deputation was sent to Dublin, who watched the course of the bill, and brought such influence to bear, that this and other objectionable clauses were rejected. Williamson, having gained permission from the Trustees to experiment with Lime-bleaching, without incurring the penalties laid down in the Act of Anne, brought the results of his labours before the Board, producing as evidence two hundred pieces of linen bleached by his process in Lambeg, along with a quantity of similar goods bleached by him in the ordinary way. These were examined by a number of merchants, who declared that Mr. Williamson's lime-bleached linens were "by far the whitest in colour, and quite superior to the others in soundness and strength." In spite of this evidence, the Board refused to sanction the use of lime in bleaching. The matter, however, but lay in abeyance, for we find that in 1770 Dr. James Ferguson, of Belfast, received a reward of £300 from the Board of Trustees, for an application of lime in the process of bleaching, but no use was made of his experiments, the law of Anne still remaining in existence. As late as 1815, Mr. Barklie, of Keady, was prosecuted for using lime in the whitening of linens in his bleach-yard.

The following criticism on the early use of lime in bleaching has been kindly supplied by Mr. E. Clayton, F.C.S., lecturer in Bleaching and Dyeing in the Municipal Technical Institute, Belfast, to whom the author is also indebted for a review of this short chapter on Bleaching:

"Reference has been made to the fact that the use of lime in bleaching was a punishable offence so late as 1815, although it had been previously demonstrated that lime-bleached linens exhibited a purer white than goods not so treated. Furthermore, the strength and other physical properties of the fibre were quite equal to those possessed by linen which had been bleached without lime, according to the general practice in vogue at that time. It is difficult, therefore, to account for the attitude of the authorities in this matter, unless we assume that the enactment was really intended to prevent the immediate application of quick-lime, which if applied in the dry state would certainly have destroyed the texture of the cloth. Presumably, however, lime was not allowed to be used even after it had been slaked with water, although a few simple experiments would have proved that in this state it had no injurious action on the linen under the usual working conditions, provided, of course, it was properly sieved before use. The fact that quick-lime gives off great heat when mixed with cold water was, no doubt, regarded as conclusive evidence that the use of this substance in any form for bleaching purposes would be inimical to the production of sound and well-bleached fabrics. A reversal of this opinion appears to have gradually taken place soon after the beginning of the 19th century, and since that time slaked lime has been universally employed in the first boiling operation to which many varieties of linen piece goods are subjected in the process of bleaching."

CHAPTER VI.

The Linen Halls

When the linen piece-goods were ready for sale they were brought to the nearest established market. Brown goods were offered to, and bought by, the bleachers, and these, when bleached, were sold to merchants or factors. The markets being found inconvenient to English buyers, it was decided, for their convenience, to establish a Linen Hall in Dublin, to which merchants might send their bleached linens. In the beginning of 1721, this decision was arrived at, and after inquiring into the conditions of similar halls in Hamburg and Blackwell, suitable ground was acquired and building operations commenced in August, 1722. Apparently the work proceeded slowly, for we find that in May, 1725, a committee was appointed to examine the building and report "whether justice be done to the public therein," and in October of the following year the building seems to have been completed, for at that time a committee was summoned to meet at the Hall, to consider in what manner the rooms might be best fitted up for the reception of goods. An Act was passed in the 1st of George II., giving the Trustees power to constitute rules and orders for regulating and governing the Linen Hall, such rules to be confirmed and approved by the Lord Chancellor and three chief Judges, or any two or more of them. Rooms were to be set apart in which individual merchants might store goods for a reasonable time, and expose them for sale. Lockers to be provided for small quantities. Factors or

Salesmen were appointed by the Board and attached to the Hall, but no factor or other officer of the Hall was permitted to be a buyer of hempen or flaxen manufactures of any kind, nor be in partnership, or employ any person in trust for purchasing any of the goods lodged in the Hall. The factors were permitted to receive a commission of 3d. per £1 sterling on goods sold, and to receive no other fee, reward, or perquisite; were compelled to keep books and make regular entries of all transactions relating to the sale of goods entrusted to them for disposal, and when any sale was effected, to write by the next post giving advice to the merchant employing them, how and to whom the said goods were sold. Accounts were to be settled by them on demand of their employers. Of course, ample and approved security had to be given by these factors. Any merchant attending the Hall was in a position to sell his own goods or employ any friend or factor of his own if he thought fit. When a merchant engaged a factor to sell his goods he gave him an inventory of them, and also the key of the room or locker in which the goods were stored. These arrangements appear to have worked in a satisfactory manner, for the cases on record in which the securities were called upon are few. The establishment of the Linen Hall proved of immense advantage to the trade, especially to the English trade. One can well imagine the difficulties and dangers of travelling into the interior of the country some 200 years ago, and the disinclination on the part of English buyers to undertake such a risk and the added trouble, on their part, of getting the purchased goods properly packed and delivered to port. The Linen Hall obviated all these difficulties, and was erected, a contemporary writer states, "under as just and nice regulations as any commercial house in Europe."

It was found, as the trade increased, that it became greater in the north, and consequently Dublin was an inconvenient market to which to send the bulk of the goods manufactured in Ireland, the mode of conveyance being on cars or carts. In 1739, according to Benn, the Earl of Donegall proposed to erect a Linen Hall in Belfast, conformable to the one erected in Dublin, but not quite so large. He proposed to build this at his own expense on ground which he caused to be walled in off the sea in Catherine Street. It would appear, however, that nothing was done in the matter of erecting a building of importance here, and in 1746, the Earl of Donegall caused some sheds to be erected in this Linen Hall yard, as it was called, for the convenience of the buyers, and further stated that it was his intention to build a Linen Hall there at his own expense. The situation of this, the first Linen Hall of Belfast, has not been ascertained, and, according to Benn, its existence terminated in 1756. The Brown Linen Hall in Donegall Street, Belfast, was established in 1754 for the sale of brown goods. This was demolished in 1774, and upon the ground was erected St. Anne's Church. On the same site the Cathedral now stands. The Brown Linen Hall was removed to another site in Donegall Street, where it remains to-day (1919) a monument of the past. This hall was set up on the plan of most linen markets, having built standing-places erected for the convenience of the bleacher or his buyer. The weavers brought their brown goods and exposed them for examination and sale. These two halls, or markets, were not constituted on the principle of that in Dublin. They were for the sale of brown goods, and simply took the *place of the country markets. The inconvenience and expense of sending bleached goods to Dublin was of great consideration, and as* there was a large direct shipping trade between Belfast and London and other English ports, it was deemed advisable to erect in Belfast a White Linen Hall. This hall was built by public subscription, on ground granted by the Earl of Donegall, the foundation-stone being laid, in 1783, by the " Master of the Orange Lodge, with the wardens and brethren, accompanied by the members of other Lodges, together with the Sovereign (Mayor), Burgesses, and principal inhabitants of the town." Let us here correct an error, into which even Benn, the historian of Belfast, has fallen, and which was freely circulated some few years ago when this old hall was pulled down, so that the present magnificent City Hall might be erected on its site. The foundation-stone had inscribed upon it the words that it " was well and truly laid by the Orange Lodge." It was surely never the province of a lodge of Orangemen to lay a foundation-stone, while such a duty is naturally delegated to a lodge of Masons. This foundation-stone was really laid by the Masonic Lodge, called the " Orange " Masonic Lodge, in 1783. The first lodge of Orangemen was not founded until 1795.

As Belfast and the surrounding districts had become the centre of the linen industry, this hall soon became the centre of activity, and formed a great central market for all the bleached linens manufactured in Antrim and the neighbouring counties. The English merchants went to Belfast, and considerable trade was thus directed from the Dublin Linen Hall. When communication between Belfast and English ports became more rapid and frequent, owing to the introduction of steamships, enterprising merchants carried their goods themselves to the English linen-purchasing centres, or appointed agents there for their reception and sale, thus avoiding, on the part of the English buyers, the trouble of coming to Belfast. The original use of the Linen Hall diminished gradually, and previous to its demolition it was occupied by various linen firms as offices and warehouses. To revert to the time we speak of, there were some thirty established brown-linen markets in Ulster alone, and here the merchants or bleachers assembled to purchase. Usually the bleacher and the merchant were one and the same man. Banking arrangements were then little known or understood, so that the actual cash had to be carried by the purchasers—an undertaking by no means unattended with danger; and the buyers, although keen rivals, were accustomed to make up parties, riding or driving in company, from place to place, for mutual protection and safety: and it would seem, from several accounts, they made these journeys matters of thorough enjoyment, especially when they congregated together, in the evenings, in the commercial room of the hotel or inn, where astounding feats of punch-drinking were indulged in, and many a good story told.

CHAPTER VII.

Bounties on Foreign Export

For the encouragement of the linen manufacture, bounties were established on goods exported to foreign parts. This was done to induce competition with France, the Low Countries, and Germany. These bounties were established in 1742, and discontinued in 1830. In the former year a bounty of ½d. per yard was paid on British and Irish linens under the value of 6d. per yard, and 1d. per yard on those of the value of 6d. per yard, and not exceeding 1/–, which should be exported to Africa, America, Spain, and Portugal. Three years afterwards an Act was passed (we quote here from Warden) increasing the bounties on exportation of linen to the colonies and foreign countries. The new rates payable at the Custom Houses on duly certified invoices were as follow :—

Linen of value under 5d., a bounty of ½d. per yard.
,, ,, of 5d. and under 6d., 1d. per yard.
,, ,, of 6d. and under 1/6, 1½d. per yard.

In 1754, the payment of bounties temporarily ceased, but was renewed again two years afterwards on an application to Parliament, showing that the annual consumption of linen in Great Britain and the Colonies at that period was 80 millions of yards, of which about 32 millions of yards were imported from abroad, 12 millions imported from Ireland, an equal amount manufactured in Scotland, and 26 millions manufactured in England. The first seventy years of the eighteenth century showed a great and steady increase in the Irish linen-trade. On the accession of King William III., in 1689, Ireland did not export linens to the value of £6,000. Fifty years later the exports had mounted up to a value of £600,000. In the first seven decades of the eighteenth century, the total number of yards exported rose from somewhat over 1½ millions, valued at £105,000, to over 20½ millions, valued at £1,542,000, and linen yarns from 8,000 cwts., valued at £48,000, to 33,000 cwts., valued at £200,000, but for some years after 1770 the trade seriously declined, and many people emigrated to America. In 1773, about three-quarters of the looms in Ireland were standing idle for want of work, and in some places the whole were silent. Many expedients were adopted to revive the trade. Amongst others, the Irish Parliament resolved, in 1780, to give bounties on the exportation of Irish linens to Africa, America, Spain, Portugal, Gibraltar, and Minorca, and on Irish sail-cloth exported to any place except Great Britain (we quote again from Warden). The English Board of Trade considered this resolution, to see what effect it might have upon their own trade, and were of opinion that Irish bounties "cannot possibly affect the interests of the linen-trade of this kingdom, and are, so far as bounties may in any case be expedient, wisely and providently applied by these new provisions, to promote the interest of the Irish linen-trade." It should be stated that, at this period, the bounties granted by the English Parliament had again, for a time, ceased, to be afterwards renewed. During the beginning of the nineteenth century, public opinion began to condemn the bounty system, and many and severe were the criticisms upon it. Petitions were sent to the authorities from the various manufacturing centres, praying for a renewal of the bounties, but public opinion at last prevailed.

By degrees the bounties on coarse linens were abolished, then those on finer linens reduced, till, by a gradual process, they were withdrawn altogether, and in Ireland ceased on 5th January, 1830. From fifteen to twenty per cent. on the value of linen goods exported from Ireland to foreign ports had been paid for over eighty years. We append here a short table giving the amount of linens exported from Ireland from 1805 to 1825, taking every fifth year, showing the amount exported to Great Britain and that to foreign ports, with statement of bounty paid on the foreign export :—

Year.	To Great Britain.	To Foreign Ports.	Total Yards.	Bounty.
1805	40,707,267 yds.	2,976,266 yds.	43,683,533	£12,224
1810	32,584,545 ,,	4,313,725 ,,	36,898,270	£16,448
1815	37,986,359 ,,	5,495,206 ,,	43,481,565	£17,430
1820	40,318,270 ,,	3,294,948 ,,	43,613,218	£14,928
1825	52,559,678 ,,	2,386,223 ,,	54,945,901	£12,015

These figures are taken advisedly, as they indicate the later period up to the full continuance of the bounties, when their greatest benefit would be felt. These bounties, as we have stated, were designed to capture the foreign trade of three important European linen-manufacturing countries, the principal ports of export being in old and new Spain. In the Spanish section will be found statistics of the imports into Spain, which will show that, despite the heavy bounties paid, Ireland was very far behind. Indeed, the table itself shows the great amount of goods imported into England with a large rival manufacture, compared with the very small amount exported to countries where no linen manufacture existed. To England, it is true, no duty was paid, but no bounty was granted. This latter gave to Ireland a distinct advantage over her European competitors, yet no results worthy of the sums expended were achieved. Very few, if any, of the Irish linens found their way to Spain, the bulk of the export trade being confined to America. It should, however, be noted that Dutch and French linens were permitted to enter Spain at a lower rate of duty.

CHAPTER VIII.

Private Enterprise

Having, in a previous chapter, briefly sketched the work done by the Linen Board, we will now consider for a short space what private enterprise, added to true patriotism, was enabled to do. The results achieved by a resident landlord on his own estate near Kinsale, in the county of Cork, show vividly the wrongs Ireland has sustained owing to absentee landlordism. The estate of Sir Richard Cox, Bart., lay at the head of that charming vale in which are the towns of Kinsale and Bandon, and on each side of the river Bandon. From a letter which he wrote to Thomas Prior in 1749, the following extracts are taken. Sir Richard Cox appears to have entered upon the possession of the estate in succession to his grandfather, and finding, owing to the suppression of the woollen trade, a most deplorable state of affairs, he determined to remain on his estate and direct his energies to making matters better, "for," he said, "he must have a heart of stone who can pass his whole life amidst creatures remarkable only for misery, whose wretched condition must shock every man of tenderness and good nature." "Nor were the inhabitants of the neighbouring lands," he writes, "in a better state, for they appeared at the weekly market as wild and uninstructed as the goats, their fellow-tenants, and clothed, too, almost in the same natural manner." To revive the woollen trade was out of the question; on this matter he says: "I needed not to travel far to enquire into the condition of the wool-spinners; they were everywhere around me, miserable wretches, neither fed, clad, nor lodged like human creatures." So he determined to establish a linen industry in the midst of his people, and to direct it himself. Consequently, in 1735, two years after coming into possession of the estate, he obtained from the Linen Board twenty bushels of flax-seed, which he brought home and prevailed upon his tenants to sow, and, although unskilfully done, it grew well. He then, at his own expense, procured wheels and reels for the sowers. The next year he obtained forty bushels of seed, which, with difficulty, he prevailed upon his tenants to sow, those who had sowed the previous year not caring to venture again on account of the difficulty and hazard in the management of the crop; but, by the end of 1736, the former crop had been spun, and although done in a bungling manner the result was profitable. This was encouraging to others. Sir Richard Cox again procured a number of wheels and reels from the Board at half-price, and distributed these free amongst those who, he believed, would make the best use of them. Some time after, the Trustees ceased to supply flax-seed, so he ventured to buy twenty hogsheads himself, then thirty, and at the time he writes he had arrived at a hundred hogsheads. And the example was so effectually imitated that, moderately computed, there were four hundred hogsheads that year sown on the one side of Cork county. "This amazing increase," he writes, "will give a pleasing idea of the growing industry of the people, which probably had not happened this century if the Trustees had not, in this article (flax-seed), left us to shift for ourselves, after giving us a taste of this beneficial manufacture. For whilst their bounty was going, most stood gaping for the manna. If it fell into their mouths, they fed, but they starved if they were disappointed." This shows the self-reliance and independence of the man. After two years, when the farmers were inclined to sow flax and manufacture it into yarn, he concluded that he had laid a foundation wide and strong enough to erect an extensive manufacture. Fortunately, he began quietly, and set up only five looms, but he found that the yarns produced on his estate, and which had been used, up till then, only for domestic purposes, were by no means good enough to weave into linens for sale. So he set up a spinning-school, and sent for a woman from the north as instructress. When all the necessary preparations were made, he compelled all idle boys and girls to go to the spinning-school, to whom, for their encouragement, he paid the highest prices for spinning, and, out of every pound of yarn, obliged them to allow the mistress one penny for instructing them. The mistress and scholars had a comfortable maintenance, the undertaker who had charge of the looms was well pleased, and three looms were added to the factory the second year, but at the end of the year there was a considerable loss, and the undertaker was discharged. Matters seemed to go better when the looms were taken charge of by the weavers themselves. Yarn continued to be spun and more wheels were distributed. Encouragement was given to weave the more profitable kinds of linen, and difficulty experienced in inducing the weavers to do this. Rambling weavers came to the place, pretended to settle, and ran away leaving unpleasant memories behind them, but still the flax crops were spreading and the spinners making yarns. At length, in 1745, it was found there was not a weaver worth a groat. These men had, up till then, worked for others, received the yarn from private families and woven it for wages, and during the greater part of the winter, while the people were spinning, the weavers were idle. Sir Richard, therefore, determined to establish a yarn-market, and make the weavers the purchasers of the yarn, for their own manufacture. The spinners who had been taught in the school were now dispersed amongst private families, and many of them had lost their skill. The Trustees were applied to, and a school for twenty children was established and opened in 1746. A family from the north was procured to undertake the care of the school, and the mistress received the whole profit. Her husband set up a shop of looms to work the yarn; production increased to such extent that he was obliged to go to the market to procure more yarn, and more looms were added. Good results were arrived at by giving the mistress the profits of the school instead of paying her a salary, as her care was proportioned to her interest. This undertaking being profitable, Sir Richard advanced money to several old and new weavers to enable them to buy yarn, then settled an excellent bleacher in a most commodious green, and provided all necessary plant. Next, he promised premiums to continue for seven years from May, 1746, the following being some of the items:—£6 to the person who shall annually raise and dress the greatest quantity of flax; £4 to the second; 2/2 to the spinner who shall expose for sale at the market most and best yarn of her own spinning in the week preceding; 1/1 to the second (these last being weekly prizes); £5 to the weaver who should weave most linen; £1 to the apprentice showing best return; £5 to the person who should buy most linen at the fair at Dunmanway, on the first Tuesday of July (purchase being not less than £30) ; £50 to the person who should employ, in his own work, the greatest number of looms, being not fewer than 30 for one year, and conditional on giving satisfactory security that he would employ the same number at least, for three years after. To the second, not employing fewer than twenty looms, £30 ; to the third, not employing fewer than fifteen looms, £20 ; and to the fourth, not employing fewer than ten looms, £10. Free house rent, four looms, and as many spinning-wheels as he could make use of, for three lives, were given to any approved weaver coming to settle, and £1 for every child brought with him. £1 was given for every weaver's child born and christened in the town. The rent of the master-weaver's house made part of his premium, and a board was constructed with the following inscription thereon, in golden capital letters :—

DATUR DIGNIORI.

"This House is rent free, for the superior industry of
the possessor."

This board was called the Table of Honour; and on the second day of May in every year, on which day the premiums were adjudged, this Table of Honour was removed and carried with all solemnity, attended by music, colours flying, and all other marks of respect, and placed by the whole body of the town over the weaver's door, there to remain for the next year, to signify his merit to every passenger and make his performance more notorious. As a further mark of respect, this board was always carried in the procession by the journeymen and apprentice who got the premium for weaving most.

Sir Richard Cox was persuaded that this idea had done more to forward the work than all the money he had expended. He said: "It is a natural vanity to desire to be distinguished for excellence in any art, which causes a man to strive for a pre-eminence which nothing else could make him aspire to." Another and very pretty ceremony was appointed yearly on the first day of May; namely, a general review of all spinning-wheels in the parish, on the three-acre green within the town of Dunmanway. Sir Richard writes: "This review makes a great part of the day's entertainment, and a very high entertainment it is indeed, to see so many young creatures, rescued from idleness and want, dressed in decent garments earned by their fingers, and showing their innocent and becoming pride, as well as their taste and fancy, in adorning and setting off their wheels according to their abilities. I must not conceal from you any art I make use of to press my scheme forward, and therefore, you must know, that my daughters make part of the show, and I have prevailed, so far, as to make it fashionable for the young women of the best distinction about me to exhibit in this public manner their skill in spinning. By this the inferior class is not only kept in countenance, but highly encouraged, and to spin is looked upon to be the greatest honour and perfection of the female sex, next to being a wife and a mother, which are, through sound policy, characters highly reverenced in this place; but to be worthy of them they must first be good spinners."

The following is another quotation from this interesting letter: "When, by acquaintance and observation, I find a man to be industrious, quiet, and sober, and I see all his family diligently employed about what they are qualified to do, I enable him to buy flax for his family, and yarns for his looms, until his females, by their own spinning, provide a sufficient quantity for him; and that he may dispose of his linens to the best advantage, I supply him with provisions at the market price, until the time of the sale of the linen is passed. I never have once been deceived by persons thus treated, but have ever found them punctual in their returns, and have the satisfaction to see some of them from the lowest poverty growing fast into affluence. Yet I cannot say I have ever given them more than the ordinary encouragement, but by lending my assistance, as by constant visits I found it was necessary, and they deserved, I have served them, and my schemes at the same time have made them rich, and yet have not been one farthing the poorer." In May, 1747, Sir Richard made a personal survey of the town and found there were 87 houses containing 557 inhabitants. There were reckoned in the houses 87 flax-wheels and 51 woollen-wheels. Two years afterwards, on the day of writing, he made another survey and found there 117 houses, containing 807 people, 226 flax-wheels, and 28 woollen-wheels. The policy, of course, had been to discourage the unprofitable wool-spinning. The above survey did not take into account the wheels in the spinning-school. The people of the lowest class were well clad, and began to despise their smoky, sooty cabins; there was not one beggar upon the land or in the neighbourhood. "A delightful and a sudden change," writes the author of it all, "brought about by giving the people something to do, and by seeing that they did it."

It is with pleasure we have sketched the main points of Sir Richard Cox's scheme, employing most frequently his own words in doing so. The whole letter is written in a strain of modest pride. In 1755, six years after the foregoing account was written, Robert Stephenson, at the instance of the Board of Trustees, made a tour of inquiry through various parts of Ireland into the state and progress of the linen manufacture. Being himself a practical man and successful manufacturer, his opinions are worthy of acceptance, and we will, later on, make use of them in summing up the results achieved in the country. He arrived at Dunmanway in August. Except in one of the bleach-yards, where he reports of the bleach as being but indifferent, he speaks in the highest praise of the linen-manufacture of Dunmanway. After giving a brief account of the work done by Sir Richard Cox, he says: "The effects produced by it are wonderful in this part of the kingdom, for, although there are about 70 looms at work on yard-wide and three-quarters and half-wide linens, from the lowest to the highest prices, cambrics and diapers, yet there is more yarn made here than they all can use, some of which is bought up for the factory at Ennis Shannon and some part for a small factory carried on at Killarney. Sir Richard distributes annually about a hundred wheels more than he gets from the Board, to the poor women in the country, on their giving sufficient security to keep them in repair, and produce them on the review day, which is once a year. This is now the cheapest yarn market in the kingdom, yarn from two to four dozen in the pound being sold at eighteen pence per spangle, and fourpence-halfpenny per hank full count and length. Sir Richard has always avoided holding any share in the trade, but rather chose to lend moderate sums of money from time to time to such weavers as were of approved sobriety and care, and left the employment of the rest to them, by which means he has here the draper, manufacturer, weaver, spinner, and flax farmer, each dependant on the other and all independent of him. Sir Richard has always been very cautious in the choice of people to fix here, and has constantly discouraged idlers, by which means there is neither a family nor loom unemployed."

CHAPTER IX.

Stephenson's Reports

We will now enter into a short review or examination of the work accomplished, particularly during the life of the Linen Board, which began in 1711 and terminated in 1828, just three years after the introduction of an improvement in mechanical spinning which effectually put an end to the spinning-wheel. As authorities, we will quote Robert Stephenson's *Enquiry into the State and Progress of the Linen Manufacture in Ireland,* in 1755; Young's *Tour in Ireland,* made in 1776, 1777, and 1778; Lord Sheffield's *Observations on the Manufacture, Trade, and Present State of Ireland,* 1785; Dr. Crumpe's *Employment for the People,* 1795; various letters on the subject written to the Dublin Society; MacPherson's *Annals of Commerce,* up to 1805; the various statistical surveys published at the beginning of the 19th century; Wakefield's *Account of Ireland,* 1812; and the later proceedings of the Linen Board.

To begin with Robert Stephenson's inquiry. His journey began on the 16th June, 1755, and ended on the 14th of September, thus occupying about three months. On the first-mentioned date he went to Mullingar, and found very little flax raised in the vicinity. In the town were a bleach-yard and a spinning-school, the former well supplied with water, and plenty of business doing in both linen and yarn; the linen manufacture increasing, and mostly in low-priced sheetings. The school was well attended, but considered unnecessary, as the lower classes in County Westmeath were well acquainted with the knowledge of spinning yarns. The next day he visited the yarn fair of Mullingar, which continued in a sluggish way till 4th July. He attended the fair for some time, examined the yarn and found it generally of good quality, fit for the best coarse sheetings. On the 18th June, he set out for Clara, went through Tyrrell's Pass, examined a bleach-yard, the property of Mr. Lowe, and a considerable factory of weavers settled by Lord Belfield, the principal manufacture being low-priced sheetings. The state of the people indicated poverty. Proceeded through Kilbeggan, noting the same wretched aspect through the country, but found that the people were rapidly getting into the linen-manufacture. On arrival at Clara, found the town and country adjacent expressive of the advantages derived from people being usefully employed, the inhabitants neat and decent, and a multitude of new houses built within a few years, and no idlers as at Mullingar. Examined here a bleach-yard to which the Board granted a salary for a foreman in 1751. This bleach-yard contained about twenty-five acres of land with suitable apparatus, consisting of two wash-mills, two furnaces, and a sufficient number of kieves and lees, about 120,000 yards being bleached annually, mostly sheetings, with a few coarse diapers. In the souring process, they used bran and wheat, as buttermilk could not be obtained. There were several other bleach-yards in the neighbourhood of great extent and importance, where a considerable business was done. The district seemed to be in a very promising condition, owing to the employment of the people in the linen-manufacture. On 19th June, proceeded to Tullamore. Found the country very fit for the linen-manufacture, the poor inhabitants very numerous, little flax raised, but increasing. A sheeting and dowlas manufacture was carried on by Mr. Lewis Laurent, and was extensive. A bleach-yard was erected by the same gentleman, maintained in excellent order, and filled chiefly with his own goods, which were for the greater part middling-priced yard-wide cloth and diapers. From thence proceeded to Banagher, where very little yarn-spinning was found in the country districts, a general complaint over the south side of King's and Queen's Counties owing to scarcity of flax. There had been many spinning-schools in that part of the country, but flax was not raised to support them. Found the town of Banagher to have been almost newly built within three years. There was here a considerable linen-manufacture, to which the improvement of the place was ascribed. From Banagher went to Eyrecourt, where the linen-manufacture was in a promising way, being much supported by Colonel Eyre. On the 20th, was in Ballinasloe, and examined Colonel Trench's bleach-yard, which he kept in his own hands. When this yard was opened, there were only fourteen pieces laid down, but by the encouragement given and industry promoted by Colonel Trench, the quantity of yards bleached had exceeded 20,000—mostly low-priced sheetings, and yard-wide cloth and some diapers. We would here interrupt Mr. Stephenson's account for a moment to say, that the quantity of cloth bleached in any green is an indication of the quantity of yarn spun and woven in the immediate vicinity.

Colonel Trench himself saved a quantity of flax yearly, and had settled a colony of North-Country weavers, and this part of the county of Galway was flourishing. 20th June: The journey was continued to Aughrim, where coarse yarn was spun for Osnaburgs, sheetings, and dowlas woven there, and from flax grown in the neighbourhood, and procured from County Roscommon. Proceeded to Loughrea; there had been a flax-shop, spinning-school, and many looms granted to the Revd. Mr. Palmer, but since his death in 1751 nothing had been done, and the looms were sold and dispersed over the country. Went then to Kilchreest. There were many linen weavers from the north settled there, brought by Colonel Persse, who had not been wanting in his efforts to promote the linen-manufacture in his neighbourhood; "but," Mr. Stephenson says, "it shall appear by some future remarks how the pains and expense of many private gentlemen have not been productive of such immediate advantages as could be wished."

Saturday, June 21st: Examined a bleach-yard in the same place. There were about thirty or forty pieces on the bleach-green.

Proceeded the same day to Gort, and examined a bleach-yard the property of Sir Thomas Prendergast, Bart. The goods bleached were chiefly yard-wide linens and diapers, with a few sheetings. A flax-shop and spinning-school which were there had both been abandoned. June 22nd: Proceeded to Galway by way of Agart. June 23rd: Examined the bleach-yard of Mr. John Cox, who had formerly bleached 564 pieces a year; but another bleach-yard being erected, his output had been reduced to 525. Mr. Cox had surmounted many obstacles in introducing the linen-manufacture where it was much wanted, and stopped an increasing emigration. Mr. Martin, who had an estate in the west part of the county, called Eyre Connaught, had, at his own expense, introduced the linen-manufacture. He sent twelve of his tenants' sons to Mr. Cox as apprentices, paying the fee and clothing them during their term. These, in turn, instructed his other tenants. Examined a bleach-yard belonging to Napper Gifford. In the first year (1750) 300 pieces were bleached—a figure which had increased in the year of writing to about 620 pieces. This and the other bleach-yard of Mr. Cox were chiefly supplied with linens from the town of Galway and country adjacent; half the manufacture was of diaper of different kinds.

From thence proceeded to Monivae, June 24th. Examined a bleach-yard and factory of Mr. Robert French; the linens bleached were here generally yard-wide, some few 3-4 and a half wide, and diapers of different descriptions. The manufacture is entirely new manufacture. The bleach-yard in excellent condition, with all the necessary plant. An account of the linen bleached on this green shows somewhat over 20,000 yards. Proceeded to Tuam. Here a salary had been appointed for a flax-dresser, but no such person could be found. Inquired here about a flax-premium claimant, but could get no intelligence of him here or in other parts of the county. June 25th: Set out from Tuam and passed through Hollymount, Minola, and Foxford to Balyna (Ballina), all in the county of Mayo. This county has become very considerable in raising flax and spinning. It is well inhabited, and the women spin as great a quantity of linen-yarn, considering their number, as the women in any county in the north. The yarn made runs chiefly from two dozen in the pound to three and a half, some little as high as six dozen. There were very few linen-weavers, and so small a quantity of linens made that the spinners had to depend almost entirely on other markets for disposal of their yarn, some of which was woven in Dublin, Cork, and other parts of the kingdom. At Balyna (Ballina), a spinning-school was appointed in 1744, but has not been carried on, as the people are well-fitted to teach their children themselves. This was the only spinning-school ever appointed in the county. June 27th: Set out for Sligo, passed through Enescrone and the barony of Terera in the county of Sligo. This was a spinning country; on examination of the yarn, gross frauds were found in the lengths reeled. June 28th: Examined a bleach-yard belonging to Mr. Edward Corkran; this yard had been established many years, and looms and other advantages have been granted to a factory under Mr. Corkran. This is the first introduction of weaving in the county.

Mr. Corkran and his brother have carried this on, and have been manufacturers, bleachers, and exporters, and the manufacture has so increased that four bleach-yards are employed, chiefly in low goods, yard-wides and three-quarters, some few diapers. Another bleach-yard belonging to Mr. Thomas Knox was examined, to which the Board granted a salary for manager in 1748; this yard was found in very complete order, a considerable quantity of linens belonging to different people being in hands. The yard was employed entirely in bleaching for the country weavers. The nearest bleach-yards to the town besides those mentioned were forty miles distant, except two, one at Swadlingbar (Swanlinbar), in the county of Cavan, about 30 miles, the other at Ballyshannon, County Donegal, which had been erected the year before, and was twenty miles northward of Sligo; therefore, all the yarn made in that tract of country, which took in the most part of Donegal, all Fermanagh, the greater part of Monaghan, and almost all Cavan and Leitrim, was sent to other parts to be woven. The above mentioned counties were all spinning counties, no weaving being done except in a small part in the north. The yarn made all over was from two to four hanks in the pound. June 30th: At Swadlingbar (Swanlinbar). Here in the bleach-yard not more than two or three hundred pieces in the year are sent to be bleached, but the women throughout the country are constantly employed in spinning. The linens made in this county, owing to its vicinity to the north, are better made than usual. A spinning-school had been appointed, but never opened, for the same reason as given at Balyna (Ballina). July 1st: Went to Enniskillen, an excellent spinning district, but so few are the weavers that the yarn is almost entirely bought up for exportation. Yarn, we may state, bought up for exportation, was sent to England, principally to Manchester and district. July 2nd: Proceeded through McGwire's Bridge, Newtownbutler, and Clownish to Cootehill. At Newtownbutler there is a flax-shop granted to James Elliot; at Clownish there is another, as useless as the rest.

Up till now we have made no special reference to these flax-shops, intending to treat in the Dutch section of the management of flax, but, as they are mentioned in Stephenson's report, it may be well to explain briefly what they were. These flax-shops were established by the Trustees, and to an extent financed by them. The owner of the flax-shop might purchase his flax in the straw, and employ men to scutch it, or he might buy the scutched flax. He was supposed to keep a certain stock, and sell this to poor spinners, giving one week's credit. In some of the shops a yarn stock was kept, and the yarn sold to poor weavers on similar terms, or to be paid for when the yarn was woven. For the sake of the salary attached—about £20 a year—the bounties granted on stock kept, and the possible profit by trade, a number of applications were presented to the Board, and shops were established in various parts of the country. In 1719 the first proposals were made in this direction, and in 1723 we find a resolution refusing further grants, although those in existence, acknowledged to be of little value, still continued for years; and, despite the resolution, others were established. It was soon found that the owners of these shops were not dealing fairly with the spinners and weavers, and were not keeping a sufficient stock. In most cases the farmer grew his own flax, his wife span it, he himself wove it, and there seemed little use for the intervention of the flax-shop man. In some instances, however, this man became a flax raiser himself, on a considerable scale, and sold his own produce. A distinct advantage was gained here, as it curtailed the importation of foreign—chiefly Dutch and Flemish—flax.

To continue the notes from Mr. Stephenson's journal. July 3rd: At Cootehill, and then on to Drumcarn, where Mr. W. Newborough had a bleach-green fitted up in a most useful way and provided with all sorts of machinery. There was a considerable amount of business done in this yard. The goods made over the country were yard-wides from 10d. to 18d. a yard, and ell-wide sheetings from 16d. to 2/6 per yard. Continued journey on same day to Cavan. A bleach-yard there belonging to Mr. John Boyle, situated between two lakes, but so situated that a proper fall for driving purposes was not got. Mr. Boyle had to decline trade on this account and was giving up his yard. July 4th: Proceeded through Ballyjamesduff and Virginia to Kells. There was a bleach-yard at Kells, the property of Mr. Hatch; all the apparatus was in good order. Mr. Hatch depended upon the merchants and manufacturers of Dublin to supply him with linens, which were chiefly sheetings and dowlas.

Saturday, July 5th: Proceeded through Athboy and Trim. A considerable number of looms in Trim, and many of them kept employed by the country. Spinning of coarse linen yarn fit for Osnaburgs and sheetings was the practice of all the lower classes throughout the country. Tower-hill, July 5th: A spinning-school here and also a flax-shop kept by William Asston, who had raised a very large quantity of flax. "It was pretty good," Stephenson remarks, "and if there were a number of such flax farmers contiguous to Dublin, the market might be supplied without importing foreign flax." Mr. Asston had also some looms, the product of which he sold in the grey state in Dublin. July 7th: At Tantry, where the Dutch method of flax farming, dressing, etc., had been tried and abandoned.

The next visit paid was on July 16th at Dunleer, where there was a spinning-school and fifteen scholars in it. There had been a flax shop which was given up. July 17th: Enquired about a bleach-yard at Mooretown (alias Lurgan Green), to which a salary was granted in 1748, and found it abandoned. The same day examined George Atkinson's bleach-yard, at Balbriggan. A good deal of business done by him, chiefly on his own account. He buys his linens mostly in Armagh and Richhill, yet the linen-manufacture is increasing so much that the quantity of brown goods sold to Newry is equal to the quantity brought in—a seemingly anomalous state of affairs. Dundalk: A Dutch flax farmer, named Peter Jacob Schravendyke, had been settled here by the Board and provided by Lord Limerick with all the necessary Dutch appliances. Lord Limerick had left no stone unturned or no scheme untried to bring flax farming and dressing to the highest degree of perfection, and evidently with success, for the report goes on to state that there was a great spirit of flax-growing among the inhabitants, so that they had a considerable quantity for sale annually. There was a two-handed spinning-school in Dundalk. We will speak of the merits and demerits of the two-handed wheel in the section of Austria-Hungary, such wheels being still in use in Upper Austria. There were likewise Dutch flax-dressers, but Stephenson considered the ordinary mode of dressing or scutching flax practised in the country was "vastly speedier and preferable in every way." We would like those interested to carry this statement in their minds when they read the description given in this book of the Dutch treatment of flax at the same period, but we may here remark that any treatment of flax which involves speed, for the sake of speed, from the process of scutching right up through all the various operations, is harmful, and contrary to all proper practice, ancient or modern. To revert again to Mr. Stephenson's journal.

There was a cambric-factory in Dundalk, which was very extensive, and a spinning-school in the French method. We refer the reader to the remarks made on Crommelin's wheel. There is no evidence to show that Crommelin's wheels were used in this school; we would rather infer that the flax was fastened to the distaff, in the mode advised by Crommelin, a correct and proper mode, and one by which the yarns used in a cambric-factory could be better spun. As a matter of fact any yarns, coarse or fine, are better spun by drawing the flax straight down. Coarse yarns spun from the crossed fibres in the Irish way may not show an exaggeration of irregularities, such as will show in the case of fine cambric yarns. We are assuming, of course, that this school was established to train spinners to produce yarns for the cambric in the town. It seems surprising that, when the advantages of this manner of spinning were known, and even found necessary for fine yarns, it was not adopted for all yarns. As a matter of fact the old system of crossing the fibres on the distaff prevailed in Ireland until the last hank of yarn was spun by wheels. Returning to Mr. Stephenson's account.

Dundalk: There was a cambric bleach-yard in the town suited in every way for the cloth bleached. July 18th, Castlebellingham: A bleach-yard, flax-shop, and spinning-school here, established in 1749, had all been dropped. A Mr. Egerton settled here was doing good service in the neighbourhood by employing the poor in the linen-manufacture.

Collon, July 19th: Examined a bleach-yard owned by an Englishman from Manchester, Mr. James Sidebotham. He bleached yarn better than any in the kingdom, and covered about thirty acres with yarn. He had a very fine bleach-yard, in which he dealt with a very considerable quantity of linens yearly. In 1753 he bleached, for the journalist, eighty pieces of dowlas consisting of about 3,690 yards, 1,156 pieces containing about 24,276 yards of a new manufacture; he—Mr. Stephenson—carried on, fit for linings, besides a considerable quantity of Kentings, some common yard-wide huckabacks, etc.

Drogheda, July 19th: A very considerable coarse manufacture was carried on in Drogheda, mostly about 25 inches wide.

Leixslip, July 22nd: A bleach-yard here, the property of Messrs. W. Bryan & Co., was in excellent condition. An account of the goods bleached in this yard from 1750 to 1754 shows an average of 4,344 pieces, equalling 118,603 yards, and 18,274 pounds of linen-yarn yearly; the greater portion, however, of the cloth comprised cotton goods.

July 25th: Passed through Blessington to Baltinglass; very little flax raised about that district, which fact impeded the progress of the linen-manufacture. There were competent spinners in plenty, but no material on which to employ them. At Baltinglass, there was a bleach-yard, the property of Christopher Shaw, well situated and watered; the goods bleached in this green were yard-wides, from 10d. to 3/- per yard, and a considerable quantity of damasks and diapers, which were chiefly made in and about Carlow.

Carlow, July 26th: A bleach-yard here belonging to Philip Bernard, and of great advantage to the country, the goods bleached being almost entirely woven in the district. The foreman was from Belfast. The goods chiefly dealt with were yard-wides from about 1/- to 5/- per yard, some diapers and damasks; very little flax raised in the country. The women would all spin if only they had flax on reasonable terms. The quantity bleached in 1752, about 10,000 yards; in 1753, about 25,000 yards; in 1754, about 30,000 yards. From there proceeded through Kill, Tullow, and Clonnygill to Bunclody, in the county of Wexford, a well-peopled country, where they spun the little flax they raised into yarn—a practice in this part of the country from time immemorial.

Bunclody, July 26th: Here was a bleach-yard belonging to Mr. George Boyle, the linen-manufacture declining. Mr. Boyle had some twenty to thirty looms going since 1738.

July 27th: Proceeded through Ferns, Camolin, and Clough to Gorey. There had been a spinning-school in Camolin, but this was given up the month before; a little weaving was done in this part of the country, which was well-inhabited; no part of the country was more deficient in flax, nor was there a district more improvable.

Gorey, July 28th: A bleach-yard here belonging to Mr. Ram, to which the Board granted a salary for a foreman. A certain McCarty, from Donnybrook, rented this yard, and knowing nothing of the business, had greatly retarded the linen-manufacture. The quantities bleached here were, in 1748, 7,302 yards, increasing gradually up to 12,357 yards in 1753.

Johnstown, July 28th: Proceeded through Enniscorthy to Johnstown; there was a small bleach-yard here in a bad situation, doing practically no business. In 1753, about 127 pieces; in 1754, some 84 pieces. A few linen-weavers were settled in the neighbourhood.

July 29th: Went to Teutron from Enniscorthy, through Clough, Ballybrawn, Adamstowncross, Ballyshannon, Newbawn, and Mullenderrybridge. Examined a bleach-yard belonging to Cæsar Colclough, which had been carried on for six years. There were only about 250 pieces bleached here annually, three-quarters and half-wide linens and diapers. From thence proceeded by way of Passage to Waterford.

July 30th: Examined a thread bleach-works, the property of Miss Sarah Smith & Co. This bleach-green contained about three acres. The threads were finished in the best manner. In these works also considerable quantities of yarn were prepared for the looms, and all the yarn for a tape factory belonging to Mr. Samuel Smith was prepared for the machines. Miss Sarah Smith & Co. had also a thread-works here, in which, in 1754, they made 4,511 lbs. of thread. This production had gradually increased from but 378 lbs., made in 1750, the quality of the thread being unsurpassed.

Greenvale, July 31st: A bleach-yard was here belonging to Patrick Smith; here fine ell-wide sheetings, which were the best in the kingdom, and yard-wides, made in the factory of Messrs. P. & A. Smith, were bleached. All linens brought in from the country-side were bleached also. The green contained about seven acres and the works were well appointed. An average of 30,000 yards annually bleached. There was a considerable linen-tape industry in Waterford. In Greenvale, there was a two-handed spinning-school for a particular branch of the tape industry. The county of Waterford was as deficient in raising flax as Wexford, and foreign flax was used almost entirely.

August 1st: Examined a bleach-yard, the property of John Green, and a spinning-school under the same control; but flax alone was wanted, not a knowledge of spinning. Mr. Green exported his linens generally to England; the number of pieces returned in his accounts for 1755 was 1,670. There were three other bleach-yards in the neighbourhood. There were more spinning-schools in this county than in any county in Munster or Leinster. (Stephenson adds, " All the money expended on them is thrown away, as the women can all spin if they had flax.")

August 2nd: Proceeded to Kilkenny, where Alderman W. Collis lived, who had formerly been a contractor for raising flax, and still continued to raise large quantities. To some extent he used the Dutch method of treating his flax, and had, himself, invented some ingenious machinery for rippling and separating the seeds.

August 4th: Proceeded to Bessborough. There was a bleach-yard there the property of Mr. Shaw, which had been in existence nearly forty years. The quantity bleached in a year was 835 pieces for the country, and 125 pieces of his own manufacture. Near this was a second bleach-yard, where about the same quantity of linens was treated.

August 5th : At Clonmel. A bleach-yard was here belonging to Mr. Grubb ; the business pretty well done, he being a considerable manufacturer. There were several spinning-schools appointed in this county, and they were all as unnecessary as in the north, as the women could all spin one sort or other of linen yarn if they had flax. From thence proceeded through a rude, uncultivated, and thinly inhabited country, through Four-Mile Water, Balinamult, Scart, and Dromana, all in the county of Waterford.

Villierstown, August 6th : There was here a bleach-yard belonging to the Earl of Grandison, to which the Board granted a salary for a foreman. This yard was in excellent order; no building, utensil, or machine necessary was wanting The goods were chiefly sent to the Linen Hall in Dublin for sale ; one halfpenny a yard more was paid in the factory for weaving. Lord Grandison's wish was to make the poor happy by their industry and not to make a profit to himself. The quantity of linen bleached here during the two previous years was as follows :—In 1753, 1,028 pieces ; in 1754, 1,200 pieces, and up to 6th August, 1755, 1,203 pieces of his Lordship's and 160 pieces belonging to the country. The greatest part of the yarn for this factory was brought from the north and Connaught.

August 7th : Proceeded to Youghal, in the county of Cork. This country was almost entirely destitute of any linen-manufacture. The quantity of flax raised very inconsiderable.

August 8th : Went to Castlemartyr, through a populous country and very capable of improvement. There was a small bleach-yard there; however, the quantity of linens made in that neighbourhood was so inconsiderable that little work was done.

Cork, August 9th : A bleach-yard here, belonging to Thomas Furlong, and some twenty looms. Near to this city, and in it, were carried on the only sail-cloth manufactures worthy of notice in the kingdom at that time. Douglas Factory, the property of Messrs. Pery, Carleton & Co., contained about 100 looms, with boilers, cisterns, kieves, and every apparatus for preparing the yarn for that number of looms, which were kept employed. There was also another factory carried on in the city by Mr. Francis Price, who had twenty-six looms.

The hemp used in making these sail-cloths was entirely foreign. A very considerable quantity of flax was brought to the Cork market, from about Clonakilty, Skibbereen, and Dunmanway. It was half hackled, and sold about 6d. per lb. Some flax was imported from New York.

Doneraile, August 11th: Examined a bleach-yard belonging to Mr. W. Shaw, which was badly situated, and the work done but poorly, but a good deal of business was done, as there is no other bleach-green within twenty miles. About 425 pieces from the country were bleached annually.

August 13th: Proceeded to Ennis Shannon, where there was a bleach-yard, one of the best in the kingdom; every part was commodious and useful, suited to the extensive manufacture carried on, and fitted with all necessary machinery and plant. There is a factory built by Mr. Thomas Adderly; the linens here were made for his own account. The quantity from 29th September, 1749, to 1st August, 1755, inclusive, as returned from their books, and bleached in this green, was 8,488 pieces, containing 247,333 yards, amounting to £16,078, as follow:—Yard-wides from 9d. to 7/6 per yard, yard-half-quarter sheetings from 9d. to 15d. per yard, ell-wide sheetings from 14½d. to 3/– per yard, ⅞ wide linen from 9d. to 5/–, cambrics from 2/9 to 6/–. Dimities from 20d. to 2/4. There had been bought in this town since May, 1752, £600 value of linen yarn of all sorts. The principal part of the remainder of the yarn used there was brought from Connaught. The greater part of the linens made in the factory are vended in the country, and the remainder sold to merchants for exportation. A considerable quantity of flax raised annually.

August 14th: Proceeded to Kinsale, where there are a few looms employed by Dennis Keiff. There had been a spinning-school, which had only been kept one year. A good deal of flax grown; that not manufactured here was sent to Cork.

August 15th: Went to Ennis Shannon, thence to Dunmanway. Lengthy quotations from Mr. Stephenson's report of Sir Richard Cox's industry there have been given earlier.

August 17th: Proceeded to Macroom; there had been a little done in this neighbourhood in the linen-manufacture and some spinners of one-pound yarn.

August 18th: Went to Millstreet and Killarney. There was a bleach-green belonging to Martin Murphy, who raised a considerable quantity of flax. He had a spinning-school, which was useless, as the spinners could all spin coarse yarns. Mr. Murphy had a factory some distance off, where he had built very good houses and had twenty looms employed. They were at work on low yard-wides, which he disposed of in his shop.

August 19th: Proceeded to Castlemain, where there was a good deal of bandle-linen manufacture—a narrow and unprofitable cloth, largely made in the south.

August 20th: Went to Dingle-I-couch. A small bleach-yard in this town belonging to Timothy Conellan; the linens bleached were pretty well finished; he bleached about 150 pieces annually, chiefly yard-wides. There had been a spinning-school there, but the appointment was useless, for there were not in all Munster more industrious inhabitants in the bandle-linen manufacture between Dingle and Tralee Bay.

August 21st: Proceeded to Ardart, where was a spinning-school for forty scholars. This school had been well taken care of, under the direction of Lady Crosbie, and there was a linen-manufacture set on foot in the town and neighbourhood for yard-wides and diapers for home consumption of the inhabitants. The bandle-linen manufacture was carried on over the whole of this part of the country, and a considerable quantity of flax raised, but in no proportion to what was necessary.

August 22nd: Proceeded through Lixna, Listowel, and Abbyfield to Newcastle, in the county of Limerick, where there was scarcely anything done, except in the bandle-linen, and those weavers were very numerous in the town and country. It was computed that there were at least 400 of them employed in this manufacture, in about fourteen miles eastward towards the county of Cork. From there proceeded to Rathkeale and through Adare to Limerick.

Limerick, August 23rd: There was a considerable business done in the linen-manufacture in Limerick, as also in County Clare. There were bleach-yards both in Limerick and Clare, and bandle-linen weavers and spinners of coarse pound-yarn.

August 25th: On to Carrick-in-Lish, Pallace, Cullen, and Tipperary to Cashel. This country was very thinly inhabited, the towns prosperous. Many bandle-linen weavers in them and some few others. The women were all spinners of coarse pound-yarn. At Cashel there was a new bleach-green belonging to Ellis Chandlee, very well fitted up and provided with machinery of all sorts. 300 pieces of different kinds were bleached annually.

August 26th : At Thurles. This country was in the same situation as the last mentioned.

August 27th : To Castle Durrow. This was more a spinning *district, but flax was badly needed.*

August 28th: Proceeded to Ballyroan. A good deal of flax raised here; the women can all spin. From thence to Munsterevan, where there was a bleach-yard, the property of Mr. Felix O'Neil. The account of business done is given as 500 pieces annually, bleached for the country.

An interruption here occurs.

September 12th: At Johnstown, County Kildare. Here were a bleach-yard and factory belonging to Mr. William Rose, provided with all the necessary machinery and the business well done. Mr. Rose established the linen-manufacture there. Subjoined to the report is a full account of production from 1751 to 1754, principally sheetings, diapers, lawns, damasks, and huckabacks. An average of over 40,000 yards annually, besides the bleaching, during the last year, of 10,000 hanks of pure white yarn for thread and stocking weavers.

Dublin, September 24th: At the request of Mr. W. Bradley, examined a bleach-yard in the neighbourhood of the city.

Mr. Stephenson concludes his report by remarking: "It is believed there is nowhere a greater necessity for improvement in bleaching than near this city, as the linen-manufactures carried on in it are very extensive, exclusive of the grey sheetings, and other linens brought here for sale, which are generally bleached in some of the many greens near the town, and done very badly."

Commenting on this report, Mr. Stephenson says, referring, no doubt, to the districts he journeyed over, that very little progress was made in the linen-manufacture except what was represented in his journal; that if the whole amount of all the linen-manufacture promoted by the encouragements of the Linen Board in Leinster, Munster, and Connaught, and a considerable part of Ulster, were valued according to the representation of his journal, he believes they would not equal the returns made by one of the northern districts, where the manufacture was generally established. He considered that the schemes forwarded by the Trustees were not effective, the money spent to encourage fine spinning was wasted or directed into a wrong channel, and that the Trustees had, for years, persevered in encouraging the people to quit those branches of the manufacture for which they were best fitted. No doubt the Trustees were blindly following the plan laid down by Crommelin to encourage the manufacture of fine counts in opposition to those of his native country, and the sums of money lavished by the Board in these southern and western counties were all directed with this end in view. The journal clearly shows that linens of a coarse kind were almost universally made; yet, in 1751, we find the following list of schools in these counties in which only the spinning of fine yarns was taught—schools which cost the Board nearly £7,000 yearly :—

County Carlow -	4	County Kildare	8	Queen's County -	3
,, Cavan -	2	,, Kilkenny	13	County Roscommon	7
,, Clare -	6	King's County	9	,, Sligo - -	1
,, Cork -	17	County Leitrim	3	,, Tipperary -	8
,, Donegal	2	,, Limerick	12	,, Tyrone -	2
,, Dublin -	6	,, Longford	4	,, Waterford	3
,, Fermanagh	1	,, Lowth -	8	,, Westmeath	11
,, Galway	17	,, Mayo -	1	,, Wexford -	10
,, Kerry -	12	,, Meath -	7	,, Wicklow -	5

In all 182 schools.

The average number of scholars in each school was twenty, costing £37 10s. per school, which amounted to £6,825 yearly. These schools were obviously useless; all the women could spin the coarse yarns, many of them were wool-spinners, and could adapt themselves to spin the linen yarns woven in their districts, and yet it was computed that in thirty years the Linen Board had spent over one hundred thousand pounds in attempting to force an industry seemingly so unsuited to the country's needs, and with practically no results. Sums were also wasted on the flax-shops, which cost something like £4,000 annually. The owners of these shops were granted a premium per ton if a stock of flax up to a certain amount were kept, and to make up the amount necessary, foreign flax was bought. Instances were known where they simply borrowed flax at the time premiums were paid, in order to secure the grant of £8 per ton allowed. A letter containing remarks on the linen trade in Ireland was written by Colonel Archdall, and printed in 1753. On page 13 the following appears: "Spinning-schools, flax-shops, flax-dressers, manufacturers (and premiums for no flax), is an expense this year of no less than £15,727, and of this large sum, no less is given for spinning and selling foreign flax than £12,400. As little other is used in spinning-schools, and sold in flax-shops, so to our great reproach it may be said we are paying so much to Dutch, Russians, Germans, and other foreigners for selling their produce of flax, the importation of which, including duties, amounts to £30,000 annually."

For many long years these two wasteful items of expenditure had been going on. At last so much pressure was brought to bear on the Board that they resolved, after much discussion, that all spinning-schools and flax-shops should determine in five years after their appointment.

It must frankly be admitted that, after nearly fifty years' operations in the provinces of Leinster, Munster, and Connaught, the labours of the Board of Trustees resulted in very little benefit. Many reasons were brought forward to account for this, some of them just enough. It was contended that the weavers should have been encouraged rather than the spinners, as weaving is bound to create spinning, whereas the production of yarns may not increase weaving, instances being given of counties purely devoted to spinning. On the other side, however, we give, as follows, an extract from an *Essay to Encourage and Extend the Linen Manufacture*, by Thomas Prior, published in 1749 : "There can be no increase of the linen-manufacture without an increase of yarn, nor of yarn without an increase of spinners, nor of spinners without an increase of flax. There are many idle women and children in this kingdom that do not spin flax, as there are that do, and many of those that are now unemployed would work if they could procure the materials." The same author gives a computation for employing the following number of persons for a year, including spinners, hacklers, weavers, bleachers, etc. :—

	HANDS.
A hundred-weight of flax, worth 40/–, will employ for a year	2
A ton or twenty hundred-weight will employ	40
A hundred tons will employ	4,000
Three thousand one hundred and twenty-five tons ...	125,000

He then computes that rough flax, worth 40/- per hundred-weight, when manufactured into linen, will, on a medium, be worth the following sums :—

A hundred-weight of flax manufactured will be worth...	£16
A ton will be worth	£320
A hundred tons will yield	£32,000
And three thousand one hundred and twenty-five tons	£1,000,000

He afterwards estimates each acre on an average to produce four hundred-weight of flax, and 15,625 acres to produce 3,125 tons, affording employment for 125,000 hands, and amounting to a million sterling when manufactured. His idea evidently was—produce the flax, and all else will automatically follow. He proposed a scheme for promoting flax-growing by giving £500 in seven premiums in each province. This was tried, and for many years a sum of £2,000 was expended, but without success. He propounded a much more sensible scheme of granting premiums on coarse linens made. We have shown how the Trustees tried, for nearly fifty years, and tried in vain, to rush an unsuitable trade into these three provinces. The yarn spun was much more suited to cheaper and coarser linens, and the weavers were inclined to produce such goods, which were extensively imported into England from the Continent. The Board of Trustees in Scotland saw the advantage and took opportunity of it, as the duty into England on coarse linens was proportionately heavier than in fine, being levied per yard.

This was the natural trade of the southern provinces of Ireland, which should have been encouraged in every way possible. England's desire to encourage Irish linens, when her own manufacture was not materially interfered with, was a sufficient guarantee that this coarse foreign trade, amounting to over £1,000,000 a year, might have been, in part at least, captured. The duty imposed was in Ireland's favour, as in Scotland's, and would have ensured an ample profit.

England did not make the goods, neither did Ulster, and Scotland did not discover this nice little plum until 1747. The explanation may be found in the following criticism of the Board of Trustees, written about the time we are dealing with: "All ranks of people are agreed that the trust is neglected and the fund misapplied, but few seem to know the true cause. Every spectator must see that numbers of gentlemen accept of this trust without attending to the execution of it; and the few that do attend, and all their clerks, being almost entirely unacquainted with every branch of the manufacture, and the nature of the accounts, hath occasioned the Board's being involved in such labyrinths as it will be impossible for them to get out of by pursuing their present measures." There were 80 members on this Board. Taking up one volume of their published proceedings at random, we find the average attendance was but five, and that no attendance was put in at seventeen per cent. of the meetings summoned. One list of membership shows that over fifty per cent. of those appointed consisted of the two archbishops, peers, bishops, baronets, military and legal men, with the exception of those representing Ulster, where some names connected with the linen trade are found. Many of the summonses appeal to those living in Dublin to attend, so that business might be transacted; and it looks as if the whole work of the Board had been performed by a few men living in that city, the same names occurring at meeting after meeting. A Board constituted like this would have little knowledge of what should be done; and, after all, the gross neglect of the trust would be rather an advantage than otherwise, if only those who did attend had known the work or had been guided by those who knew it. One must not underestimate the power of the Trustees and the direct influence they brought to bear upon the trade. If they had but allowed matters in the southern provinces to take that course consistent with the inclinations of the people, instead of ever forcing upon them an artificial manufacture not suited to their surroundings, a different tale would be told. We would even go further than this, and suggest, with every show of reason, that Scotland's present-day extensive manufacture of coarse linens is the direct result of the policy pursued by her Board of Trustees in the middle of the 18th century, and that this industry should now be confined to the south of Ireland, as it is to-day wholly confined to Scotland. There can be no shadow of a suspicion that the Trustees ever acted but with fairness and impartiality in so far as their lights went, but those lights were dim—routine and red-tape guided them. Take, for example, their most unaccountable aversion to lime in bleaching for over a hundred years. They kept in force the penal laws against this substance, despite the repeated protests of the combined linen trade of the north of Ireland. We must own with feelings of gratitude the value of the report presented by Mr. Stephenson. For brevity's sake this report has been condensed, but no item of importance has been omitted, and where possible the author's own wording has been used. Without this report one would be at a loss to secure authentic information of the state of the linen trade at that period in many of the Irish counties, especially in those where the trade has entirely disappeared. This want of continuity would make any local information, if such were forthcoming, unreliable and to an extent but traditional. Mr. Stephenson made three further journeys of inquiry in the same districts in 1760 and the two following years, and laid before the Board of Trustees his observations in the separate reports. These reports were brief, and mainly dealt with any alterations in the state of the industry. In that of 1760, after a lapse of five years, very little, if any, change for the better could be reported. Regarding most of the counties, the words "no change," "very little progress," "number of weavers declined since 1755" appear. Of Carlow, he writes that the county was extremely fit for linen-manufacture, and adds: "We shall one day or other lose or be obliged to drop every branch of manufacture that is attempted or forced into parts of the country where the spinning is not the native produce of the women; it would be possible to establish the coarse-linen manufacture here."

Of Kilkenny he reports that the manufacture encouraged was in imitation of that which was established in the north, and that all the schemes to establish this trade had ended in failure. Of Kildare he writes that the number of weavers had greatly declined. The people were very much inclined to industry, and premiums might be given on coarse linens, as the whole of the county tended to that manufacture. In Galway the imitation of the Ulster trade was a failure. It is unnecessary to specify the other counties; it would be but repetition. The 1761 report still showed no material progress. In 1762 he reports of Wexford, where a scheme had been entered into by the County Linen Society for granting premiums on coarse linen, and a trade with England to some extent had been established. A similar society in Clare was following the same course. Throughout most of the counties in the south and west, bandle-linen continued to be made. This was not more than from 8 inches to 12 inches wide as a rule, and was woven purely for local consumption, and made from the coarse yarns so universally spun. The same yarns were exactly suited for the wider and more profitable English custom, and an expansion of trade in this direction was natural, if only properly encouraged, but no inducements from the Trustees were forthcoming, although local enterprise showed, to a limited extent, what might be done.

CHAPTER X.

Young's and Wakefield's Accounts

We will now follow the course of the tour made in Ireland by Arthur Young from 1776 to 1779, in so far as it deals with the linen-manufacture in the southern provinces and the few Ulster districts visited by Stephenson.

This latter gentleman's reports dealt only with the linen trade, the exhaustive inquiry of Young treated of many matters, largely agricultural, so that we have not so much detail. The more important linen centres are mentioned, and not many references are made to the purely domestic trade which did continue. Of this latter, Young mentions Florence Court, where they spun all the flax they raised into three to five hank yarn—on an average four. Many servants were hired for spinning at 12/- a quarter, who did the business of the house and span a hank a day. If they did it for pay it was 3d. a hank: this yarn was sold at the markets and fairs. The tow was spun into two-hank yarn, which was woven into seven-hundred cloth for home consumption. The weavers earned on an average 10d. a day. Coming to Ballymote, County Sligo, Young mentions that, 20 years before 1776, Lord Skelbourne came to Ballymote, had there established a linen manufactory, and lost some £5,000 by it. On his death, Lady Skelbourne gave to Mr. Wakefield, the great Irish factor in London, advantageous leases, on condition that he would carry on the manufactory. He found about 20 looms working upon their own account.

He built cottages for the weavers, and raised several buildings, and when he died five years later he was employing 60 looms. Then the trade came to a stand-still for a year, and everything went to ruin. Lady Skelbourne employed a new manager to carry on the manufacture upon his own account, giving him very profitable grants of lands. He continued for five years, also employing 60 looms, but his circumstances failing, a fresh stop was put to the work. In 1774 the Honourable Mr. Fitzmaurice undertook the business, which he took over entirely into his own hands. This gentleman seems to have equipped himself for the reconstruction of this manufacture, as Peter the Great did for the reconstruction of Russia. He took every means to make himself a complete master of the business. He went through various manufactories, inquired into details, and spared no pains to get at the bottom of things. He went repeatedly through the operations of spinning, bleaching, and weaving with his own hands, and became as thorough a master as an experienced manager. He erected a very complete bleach-works. In the first year, having no bleach-green, he sold the goods brown. In 1775 he had 80 looms, on which were made 2,110 pieces of ⅞ linens. At the time of Young's visit there were 90 looms, and preparations were being made to increase these to 120, and Mr. Fitzmaurice had no doubt of having 300 in two years' time. In the very complete and detailed accounts he gave of expenditure, no grant from the Trustees is mentioned. After deducting six per cent. on his outlay, the net profit was but £120. His object was not to make money directly by the linen-manufacture, but by it, indirectly, to improve his estate. It should be stated that the six per cent. reserved was upon all outlays, buildings, machinery, looms, cottages, etc., although for the latter he received also a rental of 40/- a year each. Six per cent. was chargeable on all capital involved, and on all outlays, including wages paid to weavers, overseers, also on cost of bleaching and on all carriage and commission; in fact, upon every outlay—truly a very safe mode of reckoning the net results. Besides this there was all the profit on bleaching at the standard rates, the amount of which is not given.

Yarn to the value of more than £40,000 per annum was exported from County Sligo to Manchester and Liverpool. Generally speaking, as much yarn was exported from Ireland as was manufactured in it. This yarn was bought in markets by jobbers. Further on, Mr. Young observes: "Very little weaving in Sligo, but a little scattered spinning *everywhere. £80,000 worth of yarn exported last year from the port of Sligo."* In order that these two statements may coincide, we may assume that Sligo was the shipment port for the neighbouring counties of Leitrim, Roscommon, and Mayo. This latter was a spinning county.

At Monivae, in Galway, mention is made of the efforts of Mr. French to wean the people from bandle-linen weaving and place them upon a more profitable footing. When he came into his estate in 1744, only bandle-linen was woven. This is one of the towns visited by Stephenson. Mr. French's efforts since then had increased the manufacture. In 1776 there were 96 looms and 370 wheels in the 276 houses. In 1744 the inhabitants consisted of three farmers and six or eight shepherds and cow-herds.

At Galway, Mr. Young reports: "Twenty years before there were only 20 looms in Galway, now there are 180. They make coarse sheetings seven-eighths wide at 9½d. to 11d. a yard, dowlas 28 inches wide at 7d. Osnaburgs at 7d. also. There are eight or nine bleach-greens in the county, but they bleach, generally speaking, only for the country consumption. The great bulk of the linens are sent, green, to Dublin. In the town and neighbourhood of Loughrea there are 300 looms, employed on linens that are called "Loughreas," of 28 inches wide, which sell at 7d. per yard. All the flax worked in the county is, generally speaking, raised in it. The yarn spun is pound-yarn, not done into hanks at all. Very many weavers are in the towns, without having any land more than a cabbage garden. The value of the linen and yarn of the whole county has been calculated at £40,000 a year."

Here we have a slight change for the better; the yarn formerly woven into 13-inch and 15-inch wide bandle-linen, which was customary in Galway, had been directed to more profitable counts. This improvement was largely due to the efforts of Mr. Andrew French, of Galway.

At Blarney, Mr. Gordon had established a linen manufactory six years before Young's visit. This was, therefore, after Stephenson had been there. There were a bleach-green and a factory of eleven damask looms. These had been in constant work for some few years, but the undertaking was stopped owing to want of success.

At Cloghnickelty, Lord Shannon had established a linen factory in 1769, and a bleach-yard with seventeen acres attached, for bleaching the pieces which were woven in the neighbourhood. There were

94 looms at work in the town. £100 a week laid out in yarn, and at three fairs £1,800, the amount of which is £7,000 a year. The cloth was chiefly coarse.

At Castle Mary, Mr. Longford had established the linen-manufacture in 1773 by building a bleach-works. He had 14 looms constantly at work upon his own account, the weavers being paid for what they manufactured, by the yard. The bleach-works employed 50 hands, where quantities of cloth for the poor people were bleached. A great many weavers were scattered about the country, who brought their webs to be bleached there. The flax was raised and the yarn spun at Clonakilty and Ross, in the west of this county of Cork. This is all Young has to say of the linen trade in those districts formerly visited by Stephenson ; and when we remember that the latter's report covered all there was at the time, no very favourable idea can be conceived of the progress. Writing in 1785, Lord Sheffield, in his *Observations on the Manufactures, Trade, and Present State of Ireland,* says that the value of foreign linen, exclusive of Irish, imported into England exceeded that of any other foreign manufacture, and that although in 30 years bounties had reduced the imports considerably, still it was computed that the foreign linen imported into England might employ and maintain upwards of 250,000 people at home, exclusive of those employed in raising and dressing flax. From former figures given in this work, it appears certain that Scotland, and not Ireland, was mainly responsible for any reductions in the importation of continental linens into England, the reduction amounting to £500,000 annually at the time Lord Sheffield writes. The period of 30 years taken by Lord Sheffield brings us back to 1755 ; and if the reader will refer to a table in the English section, facing page 234, the amount of foreign linens imported into England from 1730 to 1754 will be found. The value estimated by Lord Sheffield of England's foreign linen imports in 1783 was about one million annually. The two reports, although from different sources, are each the complement of the other. An analysis of the table referred to shows clearly the preponderance of low-priced goods sent into England from the Continent, by far the greatest bulk being those German goods referred to, which Scotland so ably captured.

We now bring the history of the linen trade in these districts of Ireland of which we have been treating up to the beginning of the 19th century and the end of the wheel-spinning industry, to take advantage of Wakefield's excellent account of Ireland, published in 1812, and the various statistical surveys of the counties, as well as some of the later reports of the proceedings of the Linen Board. From the former work we find that the excellent cambric manufactory in Dundalk, mentioned by Stephenson, continued in a thriving condition. In many parts of the country the manufacture extended no further than to spinning, markets being held in these places for yarn only. In many instances the flax was raised, spun into yarn and woven into cloth by the same person and his family. Taking Ireland, however, in general, the cultivators of flax were more numerous than the spinners, as was shown by the exportation of unspun yarn, and the spinners outnumbered the weavers, as appeared in the same list, in the exportation of linen yarn. We have here quoted Wakefield's own words, the curious expression "unspun yarn," which means flax, most likely hackled flax, the tow being retained and spun and woven for home consumption. The list referred to is not appended, nor does Wakefield give its source, but owing to his general accuracy we may accept the statements. Unfortunately, for our purpose, no account was ever kept of the acreage of flax in Ireland until the very date of Wakefield's remarks, 1812. Reverting to Colonel Archdall's letter in 1753, we find that the annual amount of flax imported into Ireland was valued at £30,000; no accounts of the increase of acreage in Ireland, which we have at our disposal, would warrant the belief that this large amount from the Continent was gradually supplanted by flax of Irish growth, and to such an extent that a surplus could be exported if the amount spun in Ireland had been even maintained. Although no statistics are available, we have every reason to believe that the coarse yarns of the southern provinces were decreasing in output, and that the flax was exported to supply the needs of the newly invented spinning machinery in England. Of this matter, however, we purpose to deal more fully when writing of the linen trade in England, but we may say in passing that the first flax-spinning machinery was of very crude construction and ill adapted to spin level yarns. Not until 1820 was any decided improvement made; so that the wheel-spinning industry continued (though it decreased), especially in Ireland, where the low wages of the spinners enabled them to compete.

To continue our extracts from Wakefield's account. In Kerry 10-inch bandle-linen was usually woven, and in the neighbourhood of Cootehill 5/4 sheetings, and intermediate widths throughout the country generally. Cavan produced a thin linen, for the most part ⅞ wide. Fermanagh and Sligo manufactured ⅞, and in these counties were found most of the bleach-greens, which finished for sale those linens which were sent in a bleached state to England. A strong kind of ⅞ dowlas, some 9/8 and 5/4 sheetings, made in the counties of Louth, Meath, and Dublin, were sold in the market of Drogheda, and found their way, in an unfinished state, into the country markets of England. A coarse cloth very much like the Scotch Osnaburgs was manufactured in Kerry and Cork, and was used in the same manner as the Osnaburgs for negro clothing. Some of the bandle-linen was also exported, but the quantity was small. The manufacture of sail-cloth was chiefly confined to the neighbourhood of Cork. The question of abandoning the Linen Hall in Dublin was freely expressed about this time, as many of the merchants were warehousing their goods in London, and submitting them there to the inspection of their customers. It was, therefore, thought that the Linen Hall, as an intermediary, was useless, and that all its expensive machinery might be dispensed with. It is true that goods passing through the Linen Hall received a sort of hall-mark, which was a guarantee to the purchaser, but more honest methods now prevailed in the trade, and goods were sold on their merits, and the London buyers had the opportunity of inspecting them in the warehouses in that city. Cork, as we have stated, was the largest centre of the sail-cloth manufactory in Ireland, although the quantity made was a mere fraction of what was used by a great maritime nation like Britain. We are not particularly concerned, in this work, with the rise and progress of mechanical spinning, but to emphasize some observations or criticisms we have ventured to indulge in regarding the policy the Board of Trustees so persistently adopted, of compelling the manufacture of fine yarns in southern Ireland, we would refer to the efforts the Board made to establish the coarse trade in sail-cloth and canvas by machinery in Cork. In 1801 a sum of £45 was granted to Julius Besnard, in 1803 a further sum of £518, and in 1805, £948 to him and other manufacturers. Up to 1808 sums were granted making a total of somewhat over £6,000. The amount of sail-cloth produced by the combined mills in seven years was 230,000 yards. Scotland, where the monopoly in the coarse wheel-spun yarns and coarse cloth was held, had produced in Dundee alone 280,000 yards of sail-cloth in the one year, 1791, and the next year saw the introduction of machine-spinning into Scotland.

While the Irish Board of Trustees were tinkering with a few water-driven spindles in Cork, Dundee had fully established a successful machine-spinning trade; one mill in that town is described below. The building was 97 feet long, 40 feet wide, four stories, and attics, in height, and chiefly fire-proof. The machinery consisted of 40 spinning-frames for flax and tow yarns, with some twisting frames, and ample preparing-machinery for all the spinning. These details are taken from Warden. This mill was started in 1807; the plans of the mill and all the machinery were procured from Leeds, then the centre of flax-spinning by machinery, and also the centre of flax machine making.

CHAPTER XI.

Statistical Surveys

With apologies for this slight digression, we proceed to give what details can be gathered from the various county statistical surveys, published at different periods, from 1801 to 1824. In many of these the information about linen-manufacture is but meagre, in many there is none at all, showing pretty clearly the lack of importance the authors attached to the trade. We are again only dealing with the same parts of Ireland.

Galway.—The manufacture of coarse linens formed the principal production of this county. Bandle-linen and narrow sheetings were sold in considerable quantities, every Thursday, at the Linen Hall in Loughrea, and a great deal of sheetings at the Inn at Tuam, but the quality was by no means a credit to the makers. A considerable quantity of yarn was sold at every fair and market. Many factors attended the fairs and bought yarn on commission.

Monaghan.—At the linen-market, in the town of Monaghan, held on Mondays, about £3,000 worth of webs sold weekly; at Clones fair, about £700 worth.

Cavan.—There were twelve bleach-greens in this county, bleaching in all yearly 91,000 pieces. Some estimate may be made by this return. "But it must be observed if, of the webs which are finished here, many are purchased in foreign markets, much more of the webs of this county's manufacture are also purchased by other bleachers." This report was written by Sir Charles Coote. In another part, he says that the average sale of linens manufactured and sold in County Cavan may be rated at seventy thousand pounds, and cloth to the value of over twenty thousand more goes to market without the county, so that nearly one hundred thousand pounds' worth is manufactured within the county.

Sligo.—Linen was the chief manufacture. It had increased and continued to increase rapidly. At Sligo, they had now a Linen Hall, and very large sums of money were laid out every week in the purchase of linens.

King's County.—The farmer took but small interest in his little farm, he being more indebted to the linen-manufacture for support. A loom was his dependence, and he was indifferent to land if the market in the vicinity was well supplied. If this manufacture were encouraged amongst the poor, they would soon be independent of farming, as they were honest and industrious.

Leitrim.—Four bleach-greens in the county, weaving trade carried on to a considerable extent.

Cork.—The only mention made is of the linen factory formerly belonging to Mr. Odderley, and so favourably noticed by Stephenson. It had now changed hands, was in the possession of Mr. Orr, and was converted into a cotton factory.

Meath.—The chief manufacture of this county was that of sacking; the tow or raw material of which it was made was brought from the north of Ireland. The tow was bought by the poor people who spun it, and the yarn was sold to the weavers at a profit of three half-pence per pound, a good spinner being able to spin from three to four pounds in a day, but two pounds was the average quantity. The manufacture was chiefly carried on about Navan, in which town there were from two to three hundred looms employed, each loom making about forty pieces of sixty yards each in the year. The pieces were generally sold in Dublin, at from 10d. to 14d. per yard. Dowlas and three-quarter-wide coarse linens were also manufactured for exportation, principally in the baronies of Slane and Duleek, and sold in Drogheda, where they were shipped to the West Indies to clothe the negroes. Linen of somewhat finer texture was made in the lower barony of Kells, and in Demifore, and sold in the market of Oldcastle, which was, however, a much better market for yarn than for linen; and some few weavers who made linen near Nobbler and Kilmainhamwood found a ready sale in the market of Kingscourt, in Cavan. A large proportion of the coarse linens of the county was sold in Drogheda.

Clare.—All the linen manufactured in this county was used for home consumption. A small quantity of coarse diapers for towels was made, and generally sold at fairs and markets, also canvas for sacks and bags was sold in the same way. The extent of the manufacture may be known by the fact that there were only three small bleach-greens in the county—one at Ennis, one at Donass, and one at Ballyhomege. Flax-seed was usually procured from Limerick, and nearly all imported from America. We may here mention that a good deal of American seed was introduced into Ireland during periods when Holland was at war, and seed could not be procured from that country. In the Clare survey, it is stated that the American seed had a brown colour, which was due to the fact that the flax was not reaped so soon. The writer very justly remarks that this American seed being riper should be better, and yet the Dutch was preferred, the American seed producing flax with spotted stalks.

Kilkenny.—The survey of this county gives a historical sketch of the linen trade. At the time it was written there were but two bleach-greens near Kilkenny. The common people manufactured part of the coarse linens which they used, but above half of them came from the north. The management of flax was little understood; it was badly scutched. American seed was chiefly sown. In most of the towns there were a few looms; the women spun flax at the rate of 4d. a dozen (two dozen thread from a pound of flax; some were able to draw three dozen). The kind of linen generally woven was three-quarters and a half wide, valued at 5d. per yard. Most of the flax was bought at the fairs, at 10/– or 11/– a stone, some was bought, hackled, at Ross and Waterford at 15d. or 16d. per pound. Tow was sold at 6d. per pound. In the hilly districts every farmer had a little flax for his own use, and generally bleached his own linen, and often had a little hemp to make sacking, sown in burnt ground in the angle of a tillage field. There was no yarn market in the district.

This, unfortunately, exhausts all the information we are able to procure from these statistical surveys. Many, as stated, contain no information of the condition of the linen trade. Indeed, it is clearly evident from the contents of these surveys that the main object of the Dublin Society, under whose direction they were compiled, was the dissemination of a knowledge of agricultural matters. In the months of January, February, March, April, May, June, September, and October, 1817, Mr. Peter Besnard, Inspector General under the Linen Board of the Provinces of Leinster, Munster, and Connaught, made a tour of inspection in these provinces and handed in a report to the Board. From this lengthy report we purpose to give a summary showing how the linen trade had fared up to that date. This report opportunely continues the history in these provinces. Considering the length of time spent by the Inspector General in visiting these provinces, and the sources at his command for getting accurate and trustworthy information from the various county inspectors and others under his command, it may be deemed that the report he presented is worthy of full credence. He first visited the

PROVINCE OF LEINSTER.

Meath.—This county was classed under the head of a yarn county, linen-weaving having made little progress. There were no regular linen markets in the county. The small quantity of linen woven in the county was, for the most part, very coarse, and was sold at the various fairs and markets for home consumption. The yarn spun was all pound-yarn and of good quality. From the return of the County Inspector of Meath, it appears that yarn to the value of about £20,000 was sold in the county in the year ending 5th January, 1817. The principal yarn markets were Oldcastle, Navan, Athboy, and Kells. There were but two bleach-greens in the county.

Louth.—The linen trade here was of great importance, amounting to more in value than in any county in Ireland except Armagh, Tyrone, and Antrim. The goods manufactured were not all made from yarn spun in the county; what was deficient was supplied by the counties of Roscommon, Longford, Westmeath, Leitrim, Galway, and Mayo, and considerable quantities of fine tow-yarn were brought from Cavan and Monaghan. The value of linen sold in the county (including Drogheda) amounted in the year to £235,696 15s., and the value of yarn of its own manufacture, £18,816. The bulk of the linen was sold in the Linen Hall at Drogheda, and the yarns were sold at Drogheda, Dundalk, Ardee, and various fairs. There were five established bleach-greens in the county.

King's County.—The linen business here was very limited and badly regulated. In 1760, the report showed a value of £50,000 of linens manufactured; in 1817, the production had declined to £20,000.

The industry was located round Clare and Tullamore, and had deserted all other parts of the county. The goods manufactured were, for the most part, bleached at home, and sold to shop-keepers in the counties of Kildare, Dublin, Queen's County, Wicklow, Tipperary, Kilkenny, and Waterford; some parcels were sent to Dublin; those disposed of within the county were principally used for shirtings for poor persons. The report states that few parts of Ireland were better-circumstanced for the establishment of the coarser branches of the linen-manufacture, but it was useless to look for any extension without the aid of the landed proprietors. The lower classes, from their extreme poverty, were prevented from making any efforts. There were nine bleach-yards, six of which bleached only yarns.

Longford.—The trade here was very considerable and in a thriving state. Linens formerly manufactured were three-quarters and dowlas, purchased chiefly in the counties of Roscommon and Galway; but the cultivation of flax having increased and the spinners having improved the quality of the yarn, the trade changed. The Longford webs sold very freely, and many of them were sent to England, where they were often used in the brown state. A general view of the county, as related to its linen and yarn trade, showed it to be in a progressive state of improvement. The yarn trade was very considerable, and the quality much improved. At Longford and Granard weekly markets were held in the open streets. The average price of linens sold in the former market varied from 6½d. to 8d. a yard, the average number of webs sold each market-day was 250 of 52 yards, value £500. The linens were all sent to Dublin, England, and the northern markets. From 150 to 300 weavers attended this market weekly. At Granard, the average weekly sales were also £500; about 300 weavers, who resided mostly in Longford, Meath, Westmeath, and Leitrim, attended this market. The goods were mostly purchased by commissioners, about twenty-five buyers attending the market.

Kildare.—The linen business had made no progress here; the local inspector had little else to do than to receive his diaries, and return them marked "nil." There were no bleach-greens, and the quantity of flax-seed sown was not worthy of record.

Wicklow.—This county was much in the same condition as Kildare, all efforts to introduce the linen business having failed. The little flax-seed sown was entirely devoted to the use of private persons. The flax crops only amounted to twenty acres.

Queen's County.—Little could be said of the linen trade in this county. No records were available which stated that the trade had ever been, at any time, of consequence. Even when efforts were being made in almost every other part of the province, the inhabitants of Queen's County seemed to be totally indifferent to the business. The produce of the few acres of flax cultivated was manufactured by the growers themselves and disposed of in the best manner possible, no established flax-market being held in the county.

Kilkenny.—From the report of the Inspector of this county, it was seen that it was entirely destitute of the linen-manufacture, as a branch of commerce, the small quantity of flax cultivated being confined to farmers for their own use. Many years earlier considerable efforts were made to establish the manufacture, but the plans were ill-advised, attempts having been made to introduce the finer fabrics in imitation of the northern goods, an attempt as absurd as it was impracticable, as neither the quality of the flax nor the habits of the poor were suited to it, the coarser branches only being likely to succeed. The small quantity of flax-seed sown was not worth noticing.

Westmeath.—This, for the most part, was a yarn-spinning county, and never had a regular linen-market. What linens were manufactured were, for the greater part, made by what were called factory-masters of different classes. These persons purchased their yarns in Westmeath, Longford, and Roscommon, and got them boiled with barilla or potash, after which they were exposed to the air for two or three weeks, and then given to weavers, who were of the poorest description of people. The custom was for the manufacturer, when he had as large a stock as his capital admitted, to invite the linen-bleachers to buy the linens, or to send them to the bleach-greens for sale, or to the Linen Hall in Dublin.

Westmeath and King's County were the only counties where the principal part of the business was done by factory-masters. The system was of long standing, having been established at Beggars' Bridge, Tyrrell's Pass, Castlepollard, Kinnegad, Ballingore, and Mullingar. The yarn of this district was considered very good in quality; the trade in yarn was very considerable, amounting to more than £25,000 annually.

Carlow.—Fewer attempts had been made at any period in this county than in any other in Leinster to introduce the linen-manufacture as a general business, or for domestic purposes, the quantity of flax-seed sown for many years being very small. In 1760 the little business done was reported to be in a declining state. In the town of Carlow some business was formerly done in bandle-linen weaving, and some attempts were made to make seven-eighth dowlas of bandle-cloth yarn. A considerable damask and diaper manufacture had also been carried on by Mr. W. Byrne, but it gradually declined. There was also formerly established a damask manufactory for His Majesty's table, but this had been transferred to Scotland. According to Mr. Besnard's ideas, the few attempts made to assist the linen business in this county had not been well directed, as the first step should have been a judicious arrangement for promoting the growth of flax and spinning of yarns. In most places the procedure had been to form bleach-greens and supply looms, without securing the primary object—the raw material to work from. The quantity of flax-seed sown in Carlow was negligible.

Wexford.—The returns made for a series of years by the local Inspector of this county showed that it had not made any progress in the linen manufacture. A Linen Society had been formed by a number of gentlemen, but, unfortunately, their operations were badly directed, they having offered premiums to the persons who would employ the most spinners, without attention to the vital question of cultivating the raw material. Very little flax was sown in Wexford—not more than fourteen hogsheads. Flax was frequently brought from other places and manufactured for the use of private persons. There was one bleach-green and no market in the county, and what little trade existed seems to have been of a purely domestic character.

Dublin.—The cultivation of flax and the linen-manufacture were little known in this county when the report was written. With the exception of a spinning-mill and linen business of Messrs. Crosthwaite, at Lucan, and an extensive sail-cloth factory of Mr. Atkinson, of Cork Street, in the Liberties, little manufacturing plant or arrangements for production were to be found either in the county or the city of Dublin. There were no linen-markets in the county, but Mr. Besnard felt induced to give a short report of linens and yarns passing annually through the Linen and Yarn Halls; and, although this is not strictly relevant to the subject now treated, the matter is of general interest and therefore is inserted.

"LINEN HALL.

"The value of linens that passed through this building on an average of four years ending the 5th January, 1817, may be estimated at £900,000 annually. £750,000 worth of this quantity is supposed to be sold by factors to the English and Irish wholesale traders, and the remaining £150,000 worth is supposed to be sent to London and other parts of England, direct from the buyer and bleacher. Of this quantity, it is thought one-eighth part may be sent in the brown state as it comes from the market, America at present taking from three to four hundred thousand pounds' worth annually. Of the English buyers who attend this market, about forty-five come rather regularly; formerly they came three times a year, but now they come only when they want linens. June is the best market; at the other two markets in February and October a considerable business is done, but mostly by order, for England.

"YARN HALL.

"The value of linen yarn that is supposed to pass through this building annually may be estimated at £50,000, but I have been assured by the most respectable and best informed persons that it has been known to amount to £250,000, and that the decrease has been occasioned *entirely* by neglect in reeling and cut banding, and by frauds practised, particularly one of rather modern date; that is, brushing the yarn when on the reel, which gives it a smooth and finished appearance, but greatly injures it—the material used in brushing tending to rot and mildew the yarn, should it remain green for any considerable time. Of the importance of the yarn-market your Honourable Board is well aware, and the frequent communications made through your respective officers clearly demonstrate the necessity of forming some plan for the better regulation of this very important business, which would be the means of giving profitable employment to thousands, now in the most abject poverty. I therefore most respectfully recommend the subject to the earnest attention of your Honourable Board."

The above report on the yarn trade shows the curious tenacity with which the Board adhered to wheel-spinning. In his report of Messrs. Crosthwaite's spinning-mill in Lucan, Mr. Besnard speaks of it as a valuable concern, the mode of conducting it reflecting the highest credit on the management. The machinery of the concern was the most complete and perfect in Ireland, considered either as to plan or the manner in which it was finished, in consequence of which the yarn produced was of the most superior kind. The operatives were fed and clothed in the most comfortable manner, and great pains had been bestowed on their health, morals, and education, as could easily be perceived by their appearance. In the year of its dissolution nearly 2,000 new spinning-wheels were distributed by the Board in Ireland, and this at a time when yarn equal to the finest hand-spun could be produced immeasurably cheaper and better by machinery. This last distribution of wheels was, of course, a diminished one; but a few years previous, and when machine-spinning was in operation in England, as much as £3,000 annually was spent on spinning-wheels, representing at least 6,000 wheels. We find Mr. Besnard advocating some plan for alleviating the misery of thousands in abject poverty, by introducing a better system of producing wheel-spun yarn, and in the same breath he reports on the well-fed, well-clothed, and healthy condition of the mill-workers in Lucan. Surely, he might have seen what was self-evident, that the days of wheel-spinning were terminating, and that the decrease of yarn sales in the Dublin Hall was due to the then extensive production of mill-spun yarn in England and Scotland.

PROVINCE OF MUNSTER.

Cork (North).—This district had made but little progress in the cultivation of flax, compared with the south of the county, and any portion of the linen business carried on in it, hitherto, was confined to persons who manufactured for their own use and sold the overplus. No attempt whatever had been made to manufacture for sale as a general business until within a few months previous to the Inspector General's visit, when the Earl of Mountcashel opened a monthly linen-market in the town of Kilworth. Some encouragement had also been given to the spinning of yarns and a scutch-mill had been erected. In the town of Fermoy, the farming society had procured 200 wheels and a number of reels. This was a time of unparalleled distress, and means of a desultory character were adopted by benevolent persons to relieve the distressed inhabitants. The only linen-market was at Kilworth.

Cork (South).—The cultivation of flax and the manufacture of coarse linen in this district afforded useful and profitable employment to thousands of persons. The mode generally practised of carrying on the business was one of division of labour and capital. Many persons of moderate capital engaged in the trade, purchased their yarn and wove it themselves or employed weavers. The cultivation of flax was as much divided as the manufacturing branch, and it was computed that not less than twenty to thirty thousand persons were annually engaged at it. By this statement was meant that so many persons grew flax in conjunction with other farm produce. There was scarcely a cottage or house in a district which extended from Ennis Shannon to Bere and Bantry which had not some branch of the linen business carried on in it. The goods manufactured were principally coarse, and during the war had paid well, many of them being used for slops for the navy and for army clothing. The largest linen-market was in the town of Clonakilty, where from £700 to £1,000 value of linens would be sold on a market-day. The pieces were brought on the backs of small horses or mules. It was usual to send the goods to Bandon, there to be assorted and packed for the English market. The greater part went to London, some to Bristol and some to Liverpool. The goods manufactured were of a different kind to those usually seen in other markets. They consisted of Vitreys, Osnaburgs, grey ticken, cheese cloths, and strainers' stuff, from twenty-one to forty inches broad. A great proportion of the twenty-seven inch received a kind of half-bleaching with lime, and were called Bawn-eens, an Irish word meaning "a little white," and in this state, and without any kind of finish, they were exposed for sale in Clonakilty, Bandon, and Cork markets, and were purchased in almost incredible quantities, hundreds of thousands of yards of them being sent to the London market, previous to which they were run through hot and cold calenders. The following remarks of the Inspector General on lime-bleaching are interesting: "Several complaints having been made relative to the mode of bleaching with lime, I have used many efforts to prevent injury from this practice, and I have minutely examined the process used. In some places it is by no means injurious to goods which are only used for very common purposes, such as the lining of hats, shoes, stuffings, etc., and being very light-sleighed do not retain the lime. When this lime is judiciously used, it is applied in a ley, and the cloth gets good washing and grassing and a slight scald in home-made ashes. In some places I have seen it immersed in complete whitewash, which often proves destructive to the linen and ruinous to the parties concerned. Of late, more attention is paid to this process than formerly, and some seizures have been made in Bandon and Cork, which will, I hope, prevent further neglect. To bleach these articles by means of alkali only would be impossible at the present prices of the whitened goods, which sell as low as 5d. the yard."

The Inspector General speaks of the town of Dunmanway as "the first seat of the linen trade in this country," a tribute certainly to the work begun there, under such adverse circumstances, by Sir Richard Cox, seventy-two years before.

The largest yarn-market was in Skibbereen, held every Saturday, which was frequently attended by the inhabitants of the island of Cape Clear. The Inspector General thus writes of these islanders: "These people are extremely industrious, very peculiar in their habits and appearance, and easily distinguished from the common persons on the main, to whom they consider themselves much superior. It has long been the custom with the inhabitants of this island to save their own flax-seed, and when the great scarcity of it occurred a few years ago, the Capers (as they are called) supplied Ireland with several hogsheads of seed—another proof of what a little industry may do in the south to produce this valuable article. Upwards of one hundred years ago, when the manufacture of linen was unknown in this district, the inhabitants of Cape Clear supplied themselves with it; but where or in what manner they procured a knowledge of the manufacture cannot be ascertained."

In Bantry the growth of flax and the spinning of yarn had made considerable progress. Ross-Carbery was entirely a manufacturing town, and contained about two hundred weavers. The principal branch of the linen business in and near Bandon consisted in the manufacture of striped bed-tickens. The report sums up as follows: "Speaking generally of the linen business of this great county, however unpromising appearances may have been for some time back, from the general distress of the times, there is every reason to expect that an extensive and useful trade in the coarse branches of the business will eventually be established throughout every part of it—a circumstance most desirable, as its idle and overflowing population calls loudly for some means of employment."

Clare.—The only branch of the linen trade carried on in this county was bandle linen—a linen used by the lower classes, and only thirteen to sixteen inches wide. About sixty years before the report was written, a Linen Society was formed in Clare, composed of all the noblemen and gentlemen of the county, who were anxious to introduce the weaving of linens for general purposes. Markets were opened, premiums were offered to those who would weave wide linens, and for a few years some success was attained, but the weavers soon returned to the bandle-linen, and Clare never attained the character of a linen county. A considerable quantity of flax was, however, grown, and some weavers settled who worked occasionally at what were called jobs for the country. Some weavers when not engaged at job-work bought yarn themselves, which they wove into webs of different lengths and breadths. These they sold to shop-keepers in Limerick and Ennis, who got them bleached. There was a weekly market in Kilrush, held in a house built by the Rt. Honourable J. O. Vandeleur; a part of the linen was bought by shop-keepers in the town and part by a regular buyer for exports. The weekly sales consisted of some 16 webs of 50 yards each, amounting in value to £40. About ten to twelve weavers attended this market, some of whom lived in Kerry and others in the county.

Limerick.—The report begins as follows: "There is no county in Ireland possessed of more advantages than Limerick for the cultivation of flax, and the manufacture of coarse linens, yet there is no place in which the articles are known where so little attention is paid to them, either in the cultivation of the plant, the primary management of it, or the necessary regulations for rendering the subsequent manufacture an article of commerce. Considerable quantities of linen are manufactured in this county, but, as in Clare, they are of such various lengths and breadths, and the linen laws are so little understood or attended to, that no person could hitherto venture to employ his capital in the trade with any prospect of success."

Abundant crops of flax were grown, but only the lowest market prices could be obtained, on account of the bad manner in which the sowing, retting, and scutching were carried out. The banks of the Shannon have been known as fine flax lands ever since flax was grown in Ireland. The Inspector General points out at some length the mistakes made in handling the crop in Limerick, and as his remarks on the subject may be of interest, we give them in full: "The first error occurs in the sowing, which in most cases is too thin, and causes the flax to be coarse and harsh; the next is in letting it ripen too much before pulling, by which means it is so loaded with mucilage or resin that it is scarcely possible to discharge it in steeping without great danger of rotting the plant, which can only be prevented by a degree of care rarely bestowed on it. Indeed, I have never seen the mucilage properly discharged from the flax of this county, and the consequence is that the yarn spun from it requires more working, care, and expense than the yarn spun from any other flax I have ever met with; and yet, notwithstanding the great prejudices of the flax-growers here in favour of allowing the plant to ripen too much, they neglect the advantages which this error may be able to produce, as I have often seen in flax taken from the water a large quantity of seed, which, with proper care, would have been of great value. However, such is the negligence in this respect that they seldom save the seed, and both the flax and ground suffer all the injury that attends letting a crop stand to seed-time. By this means two great evils arise: first, by giving the flax of the country a bad character, and next, by inducing a belief that flax is a more exhausting crop than it really is when properly cultivated, every person acquainted with agriculture being aware that it is the seeding of any vegetable that most exhausts the ground, and not the mere vegetating of the plant, which is all that is wanted to make good flax. It does not, however, follow that flax should not be grown for seed in such proportions as may be wanted for the ensuing year, and the mode now in general use in England (in those places where the cultivation of flax is most advantageously practised) is what I should recommend in this county; that is, to allot a portion of ground to the particular purpose of producing seed, and convert the plant after yielding it into some of those purposes it may be suited to. To do this with effect, the plant, when pulled, should be well dried and stacked like corn, until the ensuing spring, as it is a received opinion that the seed gathers strength from the stem for several weeks after it is pulled, and it attains bright and lively colour in the stack. Certain it is, that any kind of seed is thus best preserved. It seems, however, that the saving of flax-seed was not entirely neglected in this county, as the Palatines, who settled in the neighbourhood of Rathkeale, were, many years ago, in the habit of saving their own seed; and it is a fact that so far back as 1762 these people, in general, were known to have sown it with effect for fifteen years in succession—a proof that this rich county is capable of profiting by every branch attendant on the cultivation of a plant productive of so much wealth and useful occupation in every place where it has been industriously attended to. Another fault in the management of flax in this county is that of not steeping it a sufficient time, and not grassing it long enough after steeping, which the cultivators in Ulster call 'mannering' it properly. To these errors is to be added that of drying with fire, in order to make it break easily with the rude and imperfect 'machines' (if such they may be called) that the flax of this county is scutched with."

Kerry.—The linen trade in this county was not of any great importance, and was mostly found in and around Dingle. The linens were not sold like other linens in open market. On account of the poverty of the weavers they were unable to purchase yarn themselves, so the linens were made to the order of persons who purchased the yarn and gave it out to be woven. The goods were afterwards sent to factors in Cork, who sold them to export merchants, shop-keepers, etc. A considerable quantity of bandle-linen was manufactured, the value of which was computed at £30,000: in the war time it had risen to nearly double that amount. The Inspector General speaks in strong terms of the fault the Linen Board committed in former years in forcing the fine end of the trade into the province of Munster, which trade had so signally failed. He recommended the inhabitants of Kerry to confine their attention exclusively to the coarsest fabrics. It was computed that narrow linens of the value of about £20,000 were also made in Kerry, and sold in the different fairs and markets for home consumption, the peasants having a strong attachment to it on account of its great durability. There was only one bleach-green in the county, that of Mr. Purcell, in Killarney.

Tipperary.—The sowing of flax-seed had increased here, but no linen-manufacture was established as a trade. All the linen woven from the flax grown in the county was converted to home use, or sold by poor weavers in the fairs. The linen business had always been in a poor state in this county, and yet there was a numerous and idle population, a soil well adapted to the growth of flax, and every advantage in climate and water.

Waterford.—This county had no claim to the character of a linen or yarn county; what little was done in the business was confined entirely to private persons, or to shop-keepers, who got webs woven and sent them to be bleached in County Kilkenny. It was stated there were not one hundred weavers in the entire county and city of Waterford, and the greater number of them resided in or near the city. There were no yarn or flax markets, and the small quantity of yarn and a few tons of flax which appeared at the May and October fairs in the city of Waterford comprised the flax and yarn trade of the county.

About sixty years before the report was written, a limited linen business existed, but was "entirely an enforced one, on the same erroneous *principles that guided all attempts to advance the linen trade at that day." In addition to these difficulties there had been a strike amongst the weavers for an advance of wages, and this quite destroyed the trade. The thread manufactory of the Smith family, in Waterford, had now long ceased to exist. It is supposed that about 2,500 webs* were made annually by private persons in Waterford. There were no bleach-greens in the county.

PROVINCE OF CONNAUGHT.

Sligo.—The linen and yarn business of this county was one of long standing. Considerable quantities of yarn, the surplus of the consumption of the county in its own manufacture of linen, had been exported for a number of years, principally to the north of Ireland, to England and to Scotland, but the fraudulent condition in which the yarn was put up had greatly injured the trade. The mischief was caused principally by jobbers who went about the county, and to remote places, and bought privately from the people. There were two weekly linen-markets in the county—one in Sligo town, held in a Linen Hall built by Mr. Thomas Holmes in the year 1799. Here about 150 webs were sold weekly, the value being £400, and about 120 weavers attended the market, some from Leitrim and Roscommon. Another market was held weekly at Collooney, where about half the above quantity of linen changed hands.

Mayo.—The linen and yarn business here was very considerable, and daily extending, a highly creditable spirit of industry having awakened among the people. The linen was made mostly for common shirting, and had found its way into the Ulster bleach-greens—a proof of its good manufacture, it being bought by Ulster bleachers in competition with Ulster-made goods. The best webs only were selected for the Ulster greens. There were five linen-markets in the county—Castlebar, Westport, Claremorris, Newport, and Ballina—the average number of webs sold weekly being from 850 to 1,000. The first linen-market held in Westport was in 1790. The Inspector General thus speaks of it: "Its market at present is attended by 4,000 to 5,000 persons, whose manners, appearance, and dress bespeak most strongly the happy effects of a well-regulated system of industry; nor is there perhaps in all Ireland a more interesting sight than the market-day of Westport, where the greater part of its inhabitants, and hundreds from the neighbourhood, appear dressed in their best clothes, each occupied in the disposal of flax, yarn, linen, etc."

There were six bleach-greens in the county, the flax crops were very abundant, but very little seed saved. The following is the report of the markets :—

Castlebar.—The greater part of the linens from this market was sent to England in a brown state—about 300 webs were sold weekly to the value of £600. About 200 weavers attended the market, all of whom lived in the county.

Westport.—The goods of this market were partially bleached and partially sent away brown to Dublin. About 200 webs were sold weekly, value £400; all the weavers attending lived in the county.

Newport.—Part of the linen was sent to northern bleachers and part to Dublin and London in a brown state; about 110 webs sold weekly, value £220. About 100 weavers attended the market, all of whom lived in the county.

Claremorris.—The goods sold in this market were sent to Dublin in a brown state, and some to the northern bleach-greens. About 30 webs sold weekly, value £50. About 20 weavers attended, all of whom lived in the county.

Ballina.—The best webs in this market were bought by commissioners for northern bleachers, the light kinds for the English market, where they were sent in the brown state. The average number of webs sold was about 140, value £290 to £300. Most of the weavers resided in the county; some came from County Sligo, near the Mayo side.

The large influx of people into the Westport market mentioned by the Inspector General was by no means due solely to the linen trade. There was a large provision and corn trade, and a very extensive oil business.

Galway.—The quantity of linen made here was very inconsiderable. The markets of Loughrea, Galway, and Tuam, stated to be linen-markets, scarcely deserved the name. In Loughrea about six webs were sold weekly, value £12, eight weavers attending. In Galway the number of webs sold weekly averaged 20, value £50. No weavers attended this market; the linens were bought from them by jobbers at fairs and in the weavers' own houses, and sold by the jobbers in the market. At Tuam the weekly sales amounted to £135, representing

61 webs; about 60 weavers attended the market, all of whom lived in the county. This represents the whole of the County Galway linen trade, which at one time was fairly extensive. There was, however, a very considerable yarn trade, no statistics of which are given, and no doubt linen was made for domestic purposes.

Leitrim.—This might be classed under the head of a yarn county; what little was done in weaving could give it no claim to that of a manufacturing one. There was only one small market at Ballinamore, where about 50 webs were sold, value £90. The buyers were all bleachers. A quantity of coarse linen was also manufactured and sold by weavers at the different markets and fairs. The whole linen and yarn trade did not amount to more than £20,000 annually.

There were 18 yarn-fairs in the county, the yarn sold in them being sent, for the most part, to Dublin and Drogheda markets. Some yarns were bought by yarn-bleachers, by whom they were bleached and sent to Drogheda. There were four bleach-greens in the county. The flax crop was productive, but no seed was saved.

Roscommon.—There were very few persons engaged in this county in the manufacture of linen, except in those places close to the markets of Longford and Granard. There was no linen-market in County Roscommon itself, nor had there been one for years. Roscommon was looked upon as a magazine of yarn for manufacturing counties. The yarn business was very creditable, and afforded a source of employment to thousands. There were about 90 fairs in the county in which yarn was sold. These fairs were attended by 50 buyers on an average. There appeared to be no means of arriving at the quantity of yarns sold in these fairs, but it must have been very considerable. A large quantity of flax was grown in the county. There was one bleach-green at Carton, Carrick-on-Shannon.

A statement of the value of sales of linen at each market in the provinces of Leinster, Munster, and Connaught:—

County.	Market.	Sales at each Market.	Annual Sales.	Total Annual Sales for County.
Meath -	- Kells	£25 0 0	£1,300 0 0	
				Meath, £1,300 0 0
Louth -	- Drogheda	£3,500 0 0	£182,000 0 0	
	Dundalk	£60 0 0	£3,120 0 0	
				Louth, £185,120 0 0
				Carried forward, £186,420 0 0

County.	Market.	Sales at each Market.	Annual Sales.	Total Annual Sales for County.
				Brought forward, £186,420 0 0
King's County	Clara	£220 0 0	£11,440 0 0	
	Tullamore	£150 0 0	£15,600 0 0	
				King's County, £27,040 0 0
Longford	Longford	£500 0 0	£26,000 0 0	
	Granard	£500 0 0	£26,000 0 0	
				Longford, £52,000 0 0
Kildare	—	—	—	—
Wicklow	—	—	—	—
Queen's County	—	—	—	—
Kilkenny	—	—	—	—
Westmeath	—	—	—	—
Carlow	—	—	—	—
Wexford	—	—	—	—
Dublin	—	—	—	—
Cork	Kilworth	£38 0 0	£456 0 0	
	Charleville	£20 0 0	£2,080 0 0	
	Bandon	£300 0 0	£15,600 0 0	
	Cork	£200 0 0	£10,400 0 0	
	Clonakilty	£350 0 0	£18,200 0 0	
				Cork, £46,736 0 0
Clare	Kilrush	£40 0 0	£2,080 0 0	
				Clare, £2,080 0 0
Limerick	Limerick	£70 0 0	£3,640 0 0	
				Limerick, £3,640 0 0
Kerry	Dingle	£200 0 0	£10,400 0 0	
				Kerry, £10,400 0 0
Tipperary	—	—	—	—
Waterford	—	—	—	—
Sligo	Sligo	£400 0 0	£20,800 0 0	
	Collooney	£200 0 0	£10,400 0 0	
				Sligo, £31,200 0 0
				Carried forward, £359,516 0 0

County.	Market.	Sales at each Market.	Annual Sales.	Total Annual Sales for County.
			Brought forward,	£359,516 0 0
Mayo	Castlebar	£600 0 0	£31,200 0 0	
	Westport	£400 0 0	£20,800 0 0	
	Newport	£220 0 0	£11,440 0 0	
	Ballina	£300 0 0	£15,600 0 0	
	Claremorris	£50 0 0	£2,600 0 0	
			Mayo,	£81,640 0 0
Galway	Galway	£50 0 0	£2,600 0 0	
	Loughrea	£12 0 0	£624 0 0	
	Tuam	£135 4 0	£7,030 8 0	
			Galway,	£10,254 8 0
Leitrim	Ballinamore	£90 0 0	£4,680 0 0	
			Leitrim,	£4,680 0 0
Roscommon ...				—
Private Manufacture in Drogheda				£35,662 0 0
Manufactured in Munster, not returned in regular markets				£80,000 0 0
Manufactured in Leinster and Connaught, not returned in regular markets				£80,000 0 0
			Total Value,	£651,752 8 0

Some of the markets were held once a week, some twice a week, as at Tullamore and Charleville. Cork was a daily market, so was Dingle. Kilworth was a monthly market. The returns of Cork and Dingle markets are evidently based on weekly sales. The value of the linens in the above statistics was taken from the Seal-master's accounts, and thus an accurate statement was arrived at. The actual sales in markets would not be so accurate, as certain overlapping was caused by jobbers buying in one market and selling in another. Under the head of general observations in the report, the Inspector General advised the cultivation of flax in the rich grounds of Munster as an article of general commerce for the supply of Great Britain. The counties which he considered as best suited for this were Limerick, Clare, Tipperary, and part of Cork. In those counties where no progress had been made in the linen-trade, and where their limits and other circumstances made the cultivation of flax on a large scale not advisable, he recommended the cultivating of small portions of ground, with a view of giving the people employment when other work was scarce; but to give full effect, the flax must be spun into coarse yarn, the spinning of which was within the capacity of all, and thus an extensive yarn trade enjoyed by other countries might arise. The counties he recommended for this yarn-spinning were Wexford, Waterford, Wicklow, Kildare, Carlow, Queen's County, and Dublin. The report ends with a diary of this tour, which covered a total of 1,881 miles.

Any history of the industries in these south-west provinces would be incomplete unless read in the light of those previous laws which began in the reign of Queen Anne, and were not finally repealed until nearly the beginning of the nineteenth century. During all these years the Roman Catholic population of Ireland suffered under the oppressive penal code, which, directed mainly against the religious faith of three-fourths of the people, operated strongly against industrial progression.

CHAPTER XII.

Ulster Developments

We will now follow the fortunes of the linen-trade in Ulster, and especially in the north-east corner of that province. Here the spinning of flax yarn can be traced as far back as authentic history goes, and it even gets lost in the mists of uncertain tradition. From the time of Henry VIII. we find the industry had assumed considerable commercial importance. Large quantities of linen yarn were shipped to Liverpool, and conveyed from thence to Manchester to be worked up in the Lancashire looms. There was little or no manufacture of linen cloth in Ulster until the advent of the Scotch Dissenters, towards the close of the reign of Charles II. The persecutions they were subjected to forced many of them to the north of Ireland, where they set about weaving the Irish spun yarns for home consumption, and even exported manufactured goods to Britain. Following upon this immigration we have that of the Huguenots. It has been stated that the north of Ireland stands indebted for the establishment of the linen-manufacture rather to the bad conduct of others, than to any good conduct of her own. Perhaps the fact of a linen industry having been already established in the north-east of Ulster induced Crommelin and his fellow-countrymen to settle there. Be that as it may, these districts had the distinct advantage of their knowledge and support. There was no question of building up a new industry on the ruins of another ; it simply meant the carrying to a more successful issue one already fairly firmly planted. Although Stephenson's report touched but the fringe of Ulster, we have, from other sources, full evidence of the great advancement made in the northern province. As we have included Ulster in the general description given in the preceding pages, it only remains now to give the results attained in that province. In the county of Antrim, according to Young, the trade had spread all over it in the middle of the eighteenth century. According to McCall there were eighty bleach-greens in full work in Antrim in 1789, forty of which were situated within a circuit of ten miles around Belfast, and these latter greens turned out annually 170,000 pieces—about 4,400 pieces each. At a later period, in 1800, these greens were reduced to 17 in number, but each doing a vastly greater amount of work. In the same volume, quoting from Mr. John Greer, Inspector General of the Provinces, we find that a sum of £3,000 was paid each market-day in Lisburn for linen in 1784, £1,000 in Belfast, and a similar sum in Ballymena. Separate statistics of the output or exportation of different districts of Ireland are not always available, the country being usually treated as a whole. The shipping returns from various ports may cover a large area and include the manufacture of several counties, and therefore it is not possible to arrive at very accurate figures. From the port of Belfast in 1810, according to the statistical survey, 15,152,831 yards of linen, valued at £2,272,924, were exported, and £12,000 worth of linen yarn.

The same year's statistics show an import into Belfast of 12,481 bales of cotton. The previous year 1,400 bales were admitted.

A brief account of the introduction and progress of the cotton manufacture into Belfast and its neighbourhood is distinctly relative to our subject, its influence on the linen-trade being of vast importance at the time. From *Authentic History of the Cotton Manufacture into Ulster*, which appeared in the *Belfast News-Letter*, May 1st, 1805, we extract the following details:—

As early as 1777, Robert Joy conceived a scheme for introducing the most intricate branches of the cotton manufacture, which had proved unfailing sources of opulence and industry to the sister country. In conjunction with Thomas McCabe he set a number of children to work cotton on the common wheel in the Belfast Charitable Society's Institution, but finding little benefit from this mode of working, they caused a spinning-machine to be made under the direction of Nicholas Grimshaw, cotton and linen printer, from England, who had some time before settled in this country, and shortly afterwards an experienced spinner was brought over from Scotland to teach the children in the house. A carding-engine was erected to be driven by water at Mr. Grimshaw's house. This was afterwards removed to the Charitable Institution and worked by hand. Messrs. Joy & McCabe, after in vain soliciting the co-operation and aid of others, proposed to transfer their machinery at first cost to the Committee of the Charitable Society. The Committee refused to take the risk, and the original proprietors formed themselves into a company under the firm of Joys, McCabe & McCracken, and contracted with the Charitable Institution for the employment of a number of its children, as well as for the use of their vacant rooms. They despatched a skilled mechanic to England, who procured a minute knowledge of the most improved British machinery. On his return they erected a new carding-engine of superior construction, and a spinning-jenny of seventy-two spindles, then reckoned a large one. Prior to that period, from eight to ten cuts a day were the scanty produce of the most laborious spinner on the common wheel, while in the same time not more than a single pound could be carded by hand. On their seventy-two spindles, seventy-two Irish hanks were spun weekly, an output of fourteen to one, and by their carding-engine twenty pounds of rovings were thrown off, a twenty-fold increase. These improvements were adopted, and, in time, bettered by Messrs. Nat. Wilson & N. Grimshaw. The first mill for spinning cotton by water-power in Ireland was built by them in 1784, from which date the Irish cotton manufactures were considered to be firmly established. In the year 1800, only twenty-three years from the origin of the enterprise by Joy & McCabe, it appeared in evidence before Parliament that the cotton manufacture which they had thus introduced gave employment to 13,500 working people, and, including all manner of persons occupied in various ways, to 27,000 within a circuit of only ten miles, but comprehending the towns of Belfast and Lisburn.

Wakefield says: "In Antrim it is astonishing with what rapidity the linen looms are exchanging for those of cotton, and they are beginning to spread (in 1812) to a considerable distance from Belfast."

In the survey of Antrim, quoting from the lists of exports and imports for 1811, we find there were imported into Belfast 14,320 bales of cotton, of which 3,007 were exported, leaving for home consumption 11,313 bales, which at £20 per bale comes to £226,260, while the manufactured article from this raw material was estimated at a value of one million pounds sterling.

In 1810 there were 723 looms in Belfast, 45 of which were unemployed. Of the remainder, 629 were weaving cotton goods, four were on linen, thirty-five on sail-cloth, five on sacking, and five on wool. Previous to the introduction of cotton these looms were all employed on linen; and when we consider the number of looms working outside of Belfast, we can gain some idea of the importance the cotton manufacture had assumed.

There were in 1810 no less than 150,000 cotton spindles working in and around Belfast, the product of which, according to Dubourdieu, would require 11,000 weavers to work up; and if the quantity of imported cotton yarn were taken into consideration, there would be a total of 16,500 looms weaving cotton goods. It is computed that there were about 50,000 hand-loom weavers in Ulster at the beginning of the nineteenth century. The work at these looms was, of course, intermittent, and their number does not give the same indication of output as that of fully employed looms, but a comparison will show how the County Antrim cotton-looms must have interfered with the linen-trade in that county, and no doubt would have told with much greater force but for one important fact, namely, that a serious depression had overtaken the linen-trade. This depression began in 1773, and lasted for a number of years. About three-fourths of the looms in Ireland were idle, and emigration was resorted to largely by the unoccupied people. The introduction of cotton-spinning and weaving saved the situation largely in Antrim at the time, although the competition was keenly felt when the linen-trade had again assumed its normal proportions. This depression was caused, in the first instance, by over-production, but the American War of Independence largely accounted for its continuation. When Louis Crommelin settled in Lisburn the finest linen woven was 14^{00}. His particular knowledge of the finer counts, and also of damask weaving, gave an impetus to the manufacture of these classes of goods in the immediate vicinity of the place of his residence. Many of the fruits of Crommelin's labours did not ripen until long after his death—that of damask weaving especially—on any scale of importance. To William Coulson, of Lisburn, must be given the credit of developing this important branch of the linen-trade. In 1765 he began with a few looms, and shortly afterwards built a factory, which still, happily, exists. When one considers the almost insurmountable difficulties of developing a damask trade at the time, one can but admire the skill, patience, and perseverance of the founder. He began long before the days of the Jacquard machine, which helped so much to simplify the weaving of damasks, at a time when labour, even on plain looms, was unskilled. There was then no way of teaching design—such an essential adjunct to damask manufacture—and a competition had to be met with France, where the damask weaving trade with all its then known accessories had been in profitable existence for many generations. Another important damask factory was started by Mr. Michael Andrews in Little York Street, in Belfast, in 1810, and in 1819 removed to Ardoyne, where it still continues. Mr. Andrews had the distinction of being the first to introduce and work the Jacquard machines. The first two machines were, by him, brought from France in 1823. Not until a year later, according to Warden, were they introduced into Dunfermline. From such small beginnings has the great and prosperous damask industry been developed.

Finer counts of yarn were gradually spun and woven, and, by degrees, a considerable portion of the foreign trade to England was secured; but the dream of Crommelin of competing in the Spanish markets was never fully realised during the period we write of. French politics prevailed so much in Spain that Irish linens had to submit to an *ad valorem* duty of 15% in that country, against 10% on Dutch and but 5% on French linens.

The following table of County Down markets, with counts of linens sold in them, will show that in 1802, when the list was made, no great quantity of fine linens was manufactured in that county:—

Newry	from 8^{00}	to 14^{00}	Ballynahinch	from 8^{00}	to 18^{00}
	(a few up to 16^{00})		Banbridge	,, 8^{00}	,, 15^{00}
Rathfriland	from 8^{00}	to 14^{00}	Dromore	,, 10^{00}	,, 20^{00}
Kilkeel	,, 8^{00}	,, 10^{00}	Hillsborough	,, 6^{00}	,, 20^{00}
Downpatrick	,, 8^{00}	,, 16^{00}	Portaferry and		
Castlewellan	,, 8^{00}	,, 9^{00}	Kirkcubbin	,, 10^{00}	,, 14^{00}

In the county of Down, on the river Bann, according to Wakefield, there were twenty bleach-greens in 1808, bleaching on an average 8,000 pieces each. The bleaching of all yard-wide linens cost 8/-, that of cambrics 7/-, profit 8%. Goods were brought there from Tyrone and Antrim. The 8,000 pieces, multiplied by twenty, gives 160,000 as the total number of pieces, which at 58/- each amounts to £464,000; 8% profit added makes the total value of the linens annually finished on the Bann to be £502,666. From Young's tour in 1776 we find that between Lisburn and Belfast, on the river Lagan, there were twelve or thirteen bleach-greens. The counties of Antrim and Down were computed at that time to make £800,000 worth of white goods annually, nearly one-third of which was bleached in the Lagan valley. By comparing these figures we can gather something of the increase in output both in Antrim and Down. It is quite impossible to give any correct idea of the output in each separate county, as statistics bearing on these matters have never been compiled, and even accounts of sales at markets which are procurable are not reliable. Most of the goods manufactured in West Down were sold in Belfast and Lisburn, both County Antrim towns, and in Lurgan, a County Armagh town; and the County Down markets of Hillsborough, Banbridge, and Newry were frequently supplied by County Antrim and County Armagh weavers. In the same manner the output of the bleach-works can give but an indication. A bleacher, expert at certain classes of goods, would receive such goods from several counties, and besides, quantities of linen in the brown state were sent to England and bleached there.

More direct details of the products of County Armagh sent to the Linen Hall in Dublin have been tabulated by James Corry, Secretary to the Linen Board, for the eleven-year-period, 1792–1802, and are as follow:—

Years.		Total value of linens.		
1792	...	£309,926	1	3
1793	...	257,319	11	3
1794	...	255,374	8	9
1795	...	200,578	4	4½
1796	...	206,490	7	6
1797	...	178,286	1	3
1798	...	183,737	10	7
1799	...	166,948	0	7½
1800	...	202,190	12	6
1801	...	186,987	18	9
1802	...	152,641	2	6
Year's average, £209,134 10 10		£2,300,479	19	4

Linen Office, May 29th, 1803. Signed, James Corry, Sect.

The above figures, dealing only with goods received at the Dublin Linen Hall, indicate no decline in the trade of Armagh. In the later years, more goods would naturally be sent to the Belfast Linen Hall or sent direct to the English markets.

Mr. Corry has also furnished the following table of the sums paid by the Trustees, by way of bounty, to encourage the cultivation of flax in County Armagh, and the quantities of flax lands in cultivation:—

Years.	Acres.	Roods.	Bounty.		
1786	266	3	£280	18	0
1787	495	0	391	4	8
1788	428	0	338	5	11
1789	242	2	191	7	10
1790	254	3	171	19	3
1791	239	0	161	8	6
1792	239	3	222	8	5
1793	300	2	202	15	0
1794	156	2	105	11	9
1795	244	3	174	8	3
1796	1,134	0	2,579	17	0
	4,001	2	£4,820	4	7

Linen Office, May 29th, 1803. Signed, James Corry, Sect.

In 1784 a sum of £2,500 was paid each market-day for linens in Lurgan and £1,800 in Armagh. According to a statistical survey of 1804 the finest goods were made in the neighbourhood of Lurgan and Portadown. The various branches of the trade consisted in cambrics, lawns, linens, diaper, damask, and chequers. The weavers of the finer goods earned from 15% to 20% more, in the same time, than weavers of coarse goods. In Armagh, as in Antrim and Down, we find the cotton manufacture established, and the weavers, when demand was brisk for cotton goods, would lay aside their linen webs. Young says that the only object in Armagh was the linen-manufacture. This was the case from the town of Armagh all the way to Newry and also to Monaghan, and in consequence of this the farms were very small, in general from five to twenty acres. Sir Charles Coote stated that there were more looms than houses, as most of the houses had two or three looms, and, from the same source, we find that a great amount of capital was employed by bleachers who purchased webs and bleached on their own account. Considerable sums were also engaged in the purchase of yarn, which was given out to the weaver to manufacture, or the weaving was often contracted for by these wealthy manufacturers, who did not work themselves, but who kept journeymen constantly employed, either on their own account, or that of the merchants with whom they contracted. Young gives an account of the manner in which linens were sold in 1776 in the Lurgan market, to which he was conducted by Mr. Brownlow. The following is the account: "The cambrics are sold early, and through the whole morning, but when the clock strikes eleven the drapers jump upon stone standings and the weavers instantly flock about them with their pieces; the bargains are not struck at a word, but there is a little altercation, whether the price shall be one half-penny or a penny a yard more or less, which appeared to me useless. The draper's clerk stands by him, and writes his master's name on the pieces he buys, with the price, and giving it back to the seller, he goes to the draper's quarters and waits his coming. At twelve it ends; then there is an hour for measuring the pieces and paying the money, for nothing but ready money is taken, and this is the way the business is carried out in all the markets. Three thousand pieces a week are sold here, at 35/- each on an average, or £5,250, and per annum £273,000, and this is all made in a circumference of not many miles."

We fear there is some inaccuracy in Young's figures given above. We have previously stated that, in 1784, the sales in Lurgan market averaged £2,500 per week; that is, on each market-day. These figures are given by McCall and taken from figures supplied by John Greer, Inspector General of the province, and, further, Sir Charles Coote gives the annual estimate of the linen-trade of County Armagh at £300,000, this estimate being made twenty-eight years after Young's visit, when increase in the trade would be natural. Young's report of the linen-trade in the county of Londonderry is but meagre. He mentions that the manufacture of coarse ten-hundred linen was very general about Coleraine. This was carried to Dublin in cars, 110 miles, at 5/- per cwt. in summer and 7/6 in winter. When he arrived in Newtown-Limavady he appears to rejoice at leaving the linen districts, the farmers there having yarn spun in their houses, which they gave to weavers to make into cloth, they themselves attending to nothing but the management of their land. In 1776 Londonderry would appear to have been more a spinning than a manufacturing county. The yarn was conveyed to Derry town and from thence sent to Manchester. In the admirable statistical survey of this county compiled by the Rev. G. Vaughan Sampson, in 1802, we find a good deal of detailed information of the linen trade, which then had assumed fair proportions. There were fifty-nine bleach-greens in the county. The following tables of the amount of linen cloth received in Dublin, and the acreage of flax, compare very favourably with the Armagh tables, especially in flax-growing. They are supplied from the same source; viz., by James Corry, Secretary to the Linen Board. The date is 26th March, 1802.

Years.		Total value of linens.		
1792	...	£309,000	0	0
1793	...	249,112	10	0
1794	...	268,359	0	0
1795	...	267,193	16	8
1796	...	237,237	0	0
1797	...	162,025	10	0
1798	...	185,913	0	0
1799	...	233,824	10	0
1800	...	203,385	0	0
1801	...	212,530	10	0
		£2,328,580	16	8
Year's average,		£232,858	1	8

Mr. Corry stated that he was, of course, unable to guarantee that all the linen included in this list was manufactured in Londonderry county, as much of it may have been purchased in neighbouring counties and transmitted to Dublin in the white state, with the seal of a Derry bleacher on it, as if it had been manufactured in that county; but, he stated, the observation was of less importance if we considered that neighbouring counties did in the same manner become possessed of Derry linens, which were in turn sent up from those counties with the bleacher's seals as if they were manufactured there.

The following is the account of sums paid by the Trustees to encourage the cultivation of flax in the county of Londonderry, and the quantity of flax lands in the said county which received the bounty. It is certified by James Corry.

Years.	Acres.	Roods.	Bounty.		
1786	676	1	£740	8	0
1787	1,943	0	1,090	5	2
1788	1,396	0	716	16	4
1789	1,810	0	1,015	6	4
1790	1,384	2	631	16	11
1791	1,399	1	459	6	10
1792	1,507	0	465	4	6
1793	1,391	3	556	14	8
1794	1,156	1	469	17	5
1795	1,140	1	495	18	3
1796	2,204	1	5,014	13	4
	16,008	2	£11,656	7	9

The large acreage under flax in Londonderry, compared with the evident manufacture of linen, points to the fact that quantities of yarn were spun and worked up in the other counties or exported. We are inclined to think that flax had been sent to England to be worked up in the spinning-mills there, but no trace of such an export appears, although some small quantities were sent to Scotland. In 1792, Londonderry exported to England 3,825 cwts. of linen yarn, and to Scotland 339 cwts. Ten years later the export of linen yarn to England was 6,243 cwts., and to Scotland 2,470 cwts. These considerable exports would account in a great measure for the use to which the large acreage of flax was put. The same list of exports shows, in 1792, there were sent from Londonderry to England 1,152,529 yards of linen cloth, to Scotland 2,340 yards, to Carolina 25,987 yards, to New England 799 yards, to New York 45,978 yards, to Pennsylvania 54,980 yards, to Virginia and Maryland 10,376 yards, and some small quantities to Denmark and Norway. The returns of 1802 show: Sent of linen cloth to England 3,332,145 yards, to Scotland 18,007 yards, to New York 10,653 yards, to Pennsylvania 156,452 yards, with a small quantity of hackled flax and some yarn, and to Virginia 5,049 yards. These reports were extracted from the account of imports and exports, lodged in the rooms of the Dublin Society. It is probable that a considerable portion of Londonderry's linen produce found its way to the White Linen Hall in Belfast, especially from those parts of the county bordering on Lough Neagh. From the northern parts, the natural outlet would be by sea to Dublin.

The following estimate was formed of the quantity of linen bleached in Londonderry. Taking the number of bleachers as fifty, each of whom would bleach on an average 5,000 pieces yearly, the output would be 250,000 pieces, and estimating the value of each piece at £2 5s., the value of the linen bleached in the county in the year 1802 may be computed at £562,000. This computation is, however, not based upon actual facts, and may be taken but as an indication of the volume of trade, and, perhaps, not a very accurate one, when compared with the previous year's returns of the Linen Board—possibly the value of the web may be placed too high. Of the neighbouring county of Tyrone we have, unfortunately, very little information at command. Young is absolutely silent, Wakefield mentions Tyrone as a county where narrow linens, thirty-two-inch-wide when bleached, were made, and speaks of the disinclination of farmers to raise flax, owing to the want of ready money to purchase it. The survey of 1802 gives the number of bleach-greens at twenty-eight, mostly in or about Dungannon, Cookstown, and Coalisland. The list is given to serve to show the state of the linen-manufacture in the county. If we compute the output of these bleach-greens on the same basis as that above taken for Londonderry, we would naturally assume that Tyrone's linen-manufacture was somewhat more than half that of Londonderry, but such an estimate may be far from accurate. The fact that other bleach-greens were contemplated at the time the survey was written points to an increase in trade. Some bleached on their own account, others for the country at so much per yard, but the greater number bleached for themselves and for others. The author then states: "There are still many eligible situations in the county for bleach-greens, many of which, no doubt, will shortly be occupied, from the rapid progress of the trade." In some of the bleach-greens, upwards of 10,000 kishes of turf were annually consumed, or a bulk of at least 11,000 cubic yards of made-up fuel fit for consumption. Sixty kishes of turf were considered a reasonable allowance for a cotter, so that one bleach-green consumed as much fuel as 166 cottages. This was thought a serious consideration. Some idea of the increase of the linen-manufacture in Tyrone may be arrived at by a consideration of the rise in the value of flax-land. In ten years it had doubled; that is, from 1792 to 1802. The same report mentions another circumstance pointing to the increase of the linen trade. Common labourers, who were not much in the habit of weaving some years before the report was written, generally worked out two or three yards of linen in the winter-time, after the common day's labour was over. The compiler further states that, from his intimate knowledge of the country, he can assert that at least one-third more land was occupied by flax than what had been ten years before, which he states was a convincing proof of the increase of the linen-manufacture. The great rise on linens was another. From its proximity to other linen-manufacturing counties, and the number of bleach-greens employed, we must assume that the manufacture in Tyrone was one deserving of more mention in the survey.

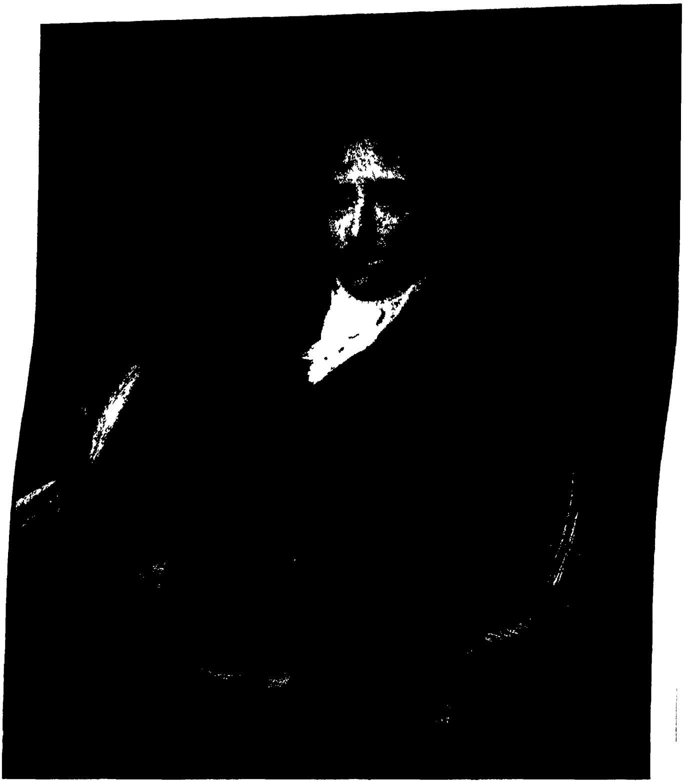
Of the trade in Donegal county, very little of importance can be ascertained. We find this to have been, to a great extent, a spinning county, not much weaving having been prosecuted. The low wages and cheap food-stuffs would induce manufacturers to come here for yarns. A labourer's wage at the beginning of the nineteenth century was 9d. a day, or 6½d. with food and drink. The yearly rent of a cottage in the mountain regions, with grass for a cow, and one acre of land, was 21/–. No accurate accounts of the quantities of flax grown are at hand. We find, however, that it was raised in Boylagh and Bannagh, in Dunfanaghy, in Doe, Rossgul, Fanod, Innishowen, and Raphoe. The principal crop raised was that of barley for whiskey manufacture. This was carried on principally in the mountain regions, and all round the coast, and by this manufacture half the year's rent was provided. The making of woollen stockings by the women was an industry of considerable importance. Lord Conyngham and Mr. Conolly had done a great deal to encourage the linen trade. The former had given looms to his tenants, and lent them money to carry on the trade, which had been brought forward in a considerable degree in the mountain region called Glantice. These looms were provided to induce the tenants to weave the yarn spun by their womenkind. It was calculated that if £10,000 worth of linen-yarn were spun on Lord Conyngham's estate, and woven into cloth there, instead of being exported to other counties, or to England, the increase in production would be £2,700, calculated on the difference of two-sevenths between the raw and manufactured material. Mr. Conolly had also established a linen manufactory of twenty houses at the Nadir and Corlea, near Ballyshannon, with two looms in each house and a certain portion of land. There were two farming societies in the county—the Thyrhugh and the Raphoe. A meeting was held of the former society, in Ballyshannon, on 24th May, 1800, when it was decided to encourage the industry and farming of the barony. It was agreed to hold two meetings of this newly-formed society yearly, one in Ballyshannon and one in Donegal. Premiums were given for a linen-market in Ballyshannon, and for the best female servants or spinners. Prizes were also given for the growing of wheat and clover, but no mention is made of flax or linen-weaving. The Raphoe Farming Society held a meeting in Raphoe on June 25th, 1800, and although prizes were offered for many crops, no notice is taken of flax or its manufactures. From the positions of the three towns where these societies met—namely, Ballyshannon, Donegal, and Raphoe—it will be seen that they represented the best arable parts of County Donegal, and border closely on the neighbouring counties of Fermanagh, Tyrone, and Londonderry. It seems, therefore, strange that no mention is made in the survey of flax-growing or of encouragement given to its growth. Later on, 1813, official statistics show 2,250 hogsheads of flax-seed sown in Donegal—a very favourable amount when compared with that sown in adjoining counties. Elsewhere is given a list showing the quantities of flax-seed sown in the various counties in 1813. From Londonderry port, vessels were constantly employed in carrying yarn, hides, butter, etc., to Liverpool. No doubt some of these commodities were the produce of Donegal, taken to the port by the farmers of this county. It is possible that, on their return journey, they brought back with them the flax of Londonderry, to work into yarns on the spinning-wheels at home. This would account to some extent for the large amount of flax grown in this latter county, and before so much flax of Irish growth was exported to feed the mills in England and Scotland.

The survey of Monaghan county, dated 1801, gives the weekly sale of brown linens in Monaghan town market at £3,000, besides which there was a very considerable sale of yarn and flax—a great deal of the yarn was exported. The weekly sales at Castleblayney are reported at £500, at Clones £700, and at Ballybay £1,500; besides, a large quantity of the linens sold in the neighbouring town of Cootehill, in County Cavan, were of Monaghan manufacture. In this report the weekly sales at Cootehill are given at £4,000, largely sheetings. Comparing this with the Cavan survey, it would seem that Cootehill sold twice the quantity of linens produced in County Cavan, and more than the whole manufacture of Monaghan. From statistics appearing later, taken from accurate sales, the value of linens sold in the weekly market of Cootehill is found in 1816 to be £1,000. The Monaghan survey in this respect cannot be taken as correct ; it gives a misleading idea of the amount of linens manufactured near Cootehill. The amount of sales in the Monaghan weekly market appears also to be exaggerated, and, taking the compiler's calculation, given later, of the amount of linen produced in Monaghan, would represent nearly the whole manufacture of that county. In 1816, the sales in Monaghan market amounted to only £1,000.

The county bleach-greens, with the number of pieces bleached in each, are given in the survey as follows :—

Crieve ...	16,000 pieces.	Crieve	6,000 pieces.
Ballyglush	15,000 ,,	Tullyglush ...	6,000 ,,
Ballybay ...	10,000 ,,	Aughnamulla ...	10,000 ,,
,, ...	10,000 ,,	,, ...	12,000 ,,
Crieve ...	12,000 ,,	Blackstaff ...	5,000 ,,
,, ...	12,000 ,,	Clones	3,000 ,,
,, ...	10,000 ,,	Durnaghlog ...	3,000 ,,

The value of these linens, brown, as sold in the markets, amounts to £165,000, and bleached, to £235,000, according to the calculations of the compiler of the survey. The average value of each web is taken at 25/–, and the average price of bleaching at 10/– per web. The results arrived at are inaccurate, taking the figures given.



JAMES CORRY.

Secretary to the Irish Linen Board.

CHAPTER XIII.

Corry's Report

To bring this account of the Ulster linen trade up to 1816, we will follow a tour made in the province during the months of October, November, and December of that year, by James Corry, Secretary to the Linen Board. He was accompanied by Peter Besnard, the Inspector General for the other three provinces.

Armagh county was the first visited. The principal markets here were Armagh, Lurgan, Tandragee, and Portadown. Full details will be tabulated later of the value of linens sold at each market in the province, so that there is no necessity to quote these figures under each separate county. We give here, therefore, only statements of general interest. Mr. Corry gives some details of early machine-spinning in County Armagh. One mill, situated in Bessbrook, belonging to Messrs. Nicholson & Sons, consisted of a spinning-mill, a scutch-mill, a hackling-house, and sundry other buildings necessary for such an establishment. The specification of the machinery working in this mill was as follows :—

Flax-preparing machinery :—Five spread-boards with drawing head, three second drawing-frames or doubles, three roving heads with ten spindles.

Tow-preparing machinery :—Six carding engines, two roving heads with ten spindles.

Flax-spinning machinery :—

22	line	spinning-frames	of	32	spindles	each	704	spindles.
2	,,	,,	,,	24	,,	,,	48	,,
4	tow	,,	,,	32	,,	,,	128	,,
6	,,	,,	,,	24	,,	,,	144	,,
						Total	1,024	

The scutch-mill contained eight sets of scutching-handles, armed at the edge with cast iron, instead of the usual wooden handles. The men had the habit of making the wooden edges very sharp to get the work done more quickly, and this caused waste and injury to the flax. There was no breaker in the scutch-mill.

There was another mill at New Holland, near Keady, belonging to Mr. James Nicholson, son of Mr. Joseph Nicholson, of Bessbrook, in which was the following machinery :—

Flax-preparing machinery :—Two spread-boards, one second drawing-frame or doubler, three roving heads.

Tow-preparing machinery :—Two carding engines, three roving heads.

Spinning machinery :—

10	line	spinning-frames	of	32	spindles	each	320	spindles.
2	,,	,,	,,	26	,,	,,	52	,,
4	,,	,,	,,	32	,,	,,	128	,,
						Total	500	

As the report of Mr. James Corry gives some details of the class of linens brought to each market, the average price obtained and the place of destination after purchase, as well as the uses to which the goods were put in some cases, we think it advisable to give an abridged account of this, dealing generally with the principal markets.

"The linens sold in Armagh market varied from 7^{00} to 12^{00}, and lawns from 7^{00} to 10^{00}, and varied in price from 9d. to 15d. The linens were chiefly bought for the purpose of full-bleaching in the country, and were sold by factors in the Dublin, London, and Glasgow markets, from thence being exported in considerable quantity to America, the West Indies, and the Spanish Main.

"The lawns were generally washed and beetled and sold in London for linings; about 300 weavers attended this market and 200 buyers. At Lurgan, linens from 14^{00} to 16^{00} and from 37 inches to 38 inches broad, and lawns 26 inches broad, also diapers from 21 to 26 inches broad. Linens sold at 2/-, lawns at 23d., diapers 23d. The lawns were all bleached at home and sold in the Irish, English, and Scotch markets. They were used for printed pocket handkerchiefs and children's wear. The diapers were bleached and sold for table-cloths, towelling, etc. About 400 weavers and 30 buyers attended this market. At Tandragee market the linens were mostly from 8^{00} to 14^{00}, and sold from 9½d. to 18d., for England, America, West Indies, and Spain. At Portadown, only coarse linens were sold—5^{00} and 6^{00}, 34 to 35 inches broad—the average price being 7d. per yard."

Tyrone County.—When writing the very meagre account of Tyrone from unsatisfactory matter available, we were not in possession of Mr. Corry's report. From what follows, it will be seen that this county was one of great importance in the manufacture of linen, and second only to Antrim in the value of its sales. The linen-markets were held in Dungannon, Strabane, Cookstown, Stewartstown, Newtownstewart; Fintona, Omagh, and Ballygawley. In his report of this county, the Secretary gives a definition of the title "jobbing merchant" as follows: "(1) The jobber who buys at a market one day and sells at another market the following day. To this species of jobbing, though contrary to law, the regular buyers do not anywhere object, for it is a convenience to them, they say, to have those under-agents bring linens from distant markets, to which they would not think it worth the trouble of going to buy. Such jobbers they almost consider fair traders, because they take their chance of the rise or fall of markets. (2) The jobber who buys in a market one day and sells in the same market on a subsequent day. This is a class of jobbers more objectionable, though they must take their chance in the market. (3) The jobber who buys and sells in the same market on the same day. This is the worst of all kinds of jobbing. The jobber in this case is a kind of middle-man, who cheats the poor weaver of a fair price and the buyer of his profit, and gets rich on the industry of both. If the first buying in this case is before market hour, the offence should perhaps be called forestalling. There is a fourth description of unfair dealing which takes place in the market, and which cannot be called jobbing, nor perhaps forestalling, and yet is not less objectionable than either. It is this: (4) The weaver brings his webs to the bench of the buyer before market hour, submits them to his inspection, and has an arrangement with him as to which he shall buy, before the market begins. This is an offence which cheats the regular buyer of the advantage of open market; it is one in which the purchaser who so deals is as much to blame as the weaver; but it is only practised by under-agents or commissioners, as they call them, not by bleachers or principal buyers. All these irregularities are found to exist more or less in the market of Dungannon." The county of Tyrone produced but a small proportion of the great quantity of yarn which was manufactured there. This was principally supplied from Fermanagh, Leitrim, and Donegal. A spacious hall had recently been erected for the sale of yarns.

In Dungannon market all linens were seven-eighth wide, from 48 to 52 yards long, and of sets 6^{00} to 11^{00}. The prices of linens made of tow-yarn were, here, about 5⅓d. per yard; those made of flax-yarn, from 9d. to 13½d. per yard. The yarn went through the process of one operation of bleaching before being woven, and the half-bleached linen had the seal of a registered bleacher affixed before it was exposed for sale.

The coarse linen was mostly exported to England, the fine linen after bleaching was also exported to England. About 1,200 weavers attended this market, most of whom resided in the county, and from 100 to 120 buyers.

Strabane.—Here three-quarter wide webs were sold 28 inch broad, made from tow-yarn and of middling quality, and seven-eighth wide, 32 inch broad, of fairly good quality. The three-quarter wide webs went mostly to Manchester and other parts of England. The seven-eighth wide webs went to the different bleach-greens, and from thence to Dublin and London markets. A small portion was exported to London in a brown state. About three-fourths of the weavers who attended this market lived in the county, the remainder came from Donegal. About 600 weavers attended, and 55 buyers.

Cookstown.—Here were sold three-quarter wide from 6^{00} to 11^{co}, 52 yards long, averaging 14½d. a yard. The linens were generally bleached in the county, a small quantity being sometimes exported, brown, to England and Scotland. The three-quarter wide was generally consumed at home, being cut up for linings, etc., in the retail shops. The seven-eighth wide was consumed in large quantities at home for shirts for the Army, and a considerable quantity was exported to America and the West India markets. The weavers numbered 450, all from Counties Tyrone and Derry; 40 buyers attended the market.

Stewartstown.—Only seven-eighth wide linens were brought to this market, 52 yards long, from 8^{00} to 11^{00}. The average price was 13d. a yard, and they were used for the same purpose as the seven-eighth linens of Cookstown. 200 weavers on an average attended, 19 out of 20 of whom lived in the county, the remainder were from Derry; about 25 buyers attended.

Newtownstewart.—The linens brought to this market were three-quarter wide, made of tow-yarn, and fine cloth made of flax-yarn, seven-eighth wide. The average price was 6d. and 12d. per yard respectively. The coarse linen was sent to England in a brown state. The fine linen was bleached and exported to different countries. 120 weavers on an average attended, all of whom resided in the county, and about 24 buyers.

Fintona.—Every second Friday. All the linens were seven-eighth wide, from 10^{00} to 11^{00}, average price from 11d. to 15d. About one-third was exported to England, brown, the remainder bleached and sent to other countries. Some 450 weavers attended, who all resided in the county, and about 50 buyers.

Omagh.—Coarse 6^{00} linens made of tow-yarn fetched 5½d. a yard, and fine seven-eighth linen of 9^{00} to 11^{00}, 12½d. per yard on an average. The coarse cloth went to England in a brown state, and fine linen, after bleaching, to England and Scotland. The weavers, numbering 500, lived for the most part in the county, a few came from the north of County Fermanagh; 60 buyers attended.

Ballygawley.—Every second Friday. The linen here was all seven-eighth wide, from 9^{00} to 11^{00}, the average price from 10d. to 14d. a yard. 200 weavers attended, all of whom lived in the county; 15 to 25 buyers also attended. No mention is made of the destination of the linens sold in this market.

Down County.—Linen markets in Down were held in Banbridge, Newry, Downpatrick, Kilkeel, Rathfriland, Ballynahinch, Hillsborough and Kirkcubbin. The examination of linens shipped on bounty a the port of Newry was conducted with as strict an attention to th safety of the revenue, and, at the same time, with as great satisfactio to the public, as perhaps in any other port. The examination too place at the Customs House stores, and the bale or package, afte examination, passed direct to the vessel without being permitted to return to the custody of the merchant. At Banbridge, the gentlemen assembled stated that the condition and quality of the webs brought to market might be improved by local grants of looms and wheels, given for the use of the market and placed at the disposal of the trade. The flax crops of this county, particularly in the eastern district, were abundant in quantity and good in quality.

Banbridge was the largest market in Down, the average price of the webs being—coarse linen £1 0s. 0d., fine linen £2 1s. 0d., lawns and cambrics £1 13s. 4d. All webs came to the market in a brown state, but the yarn before weaving was boiled with potash and spread on the grass for a few days by the manufacturers. The coarse linens sold in this market were mostly half-bleached in the neighbourhood, and exported to the north of England as shirting linen for mechanics and labourers. The fine linens were generally bleached in Down and Antrim, the finer fabrics went to the Dublin market or to the West Indies and America; the stronger kinds to London, Edinburgh, and Glasgow. Newry market was held in the open street; goods similar to these exposed at Banbridge were sold in Newry; of the three hundred weavers who attended, some came from Armagh, Louth, and Monaghan. At Downpatrick the linens varied from 6^{00} at 7d. per yard to 17^{00} at 2/10 per yard, all for the English trade. At Kilkeel linen from 10d. to 18½d. was sold, all for Great Britain. Rathfriland market sold linens from 6^{00} to 8^{00}, 25 yards long, and also webs from 12^{00} to 15^{00} of 25 yards, selling at the average prices of £2 0s. 0d. for the fine, and 19/- for the coarse, per web. The goods sold were half-bleached and sent to England for shirtings, etc. The fine goods were bought by jobbers, who took them to the markets of Newry, Banbridge, or Lisburn, where they met the regular linen-draper. 56 weavers attended, all living in the county, and from 10 to 30 buyers. Few buyers from any other counties attended.

Ballynahinch.—The linens here were all under the denomination of four-quarter wide, and were from 7^{00} to 8^{00}, selling at 7d. to 7½d. and from 8d. to 8½d. per yard. The linens received a full or half-bleach, and were sent to several parts in England in a finished state. About 16 weavers attended, all of whom lived in the county, and five buyers. Jonathan Richardson & Sons were the only buyers outside the county.

Hillsborough.—This was even a smaller market. The average price of the webs was £2 each. A certain kind of linen sold here was called "Hillsborough Hoggs." The yarn was well boiled in potash and bleached before being woven. This was a declining market; formerly a great deal of business had been done for the English and Scotch markets, and for America—brown goods, principally for servants' sheets, coarse rubbers, etc. Not more than three or four pieces were exposed weekly at the time the report was written. About four weavers attended; sometimes there were no buyers.

Kirkcubbin did a much better trade. The linens were four-quarter wide, and the average prices were as follow :—

8^{00} and 9^{00}, from 8d. to 9d. a yard.
12^{00}, 13^{00}, and 14^{00}, from 15d. to 20d. a yard.
15^{00} and 16^{00}, from 20d. to 2/2 a yard.

The linens when sold were chiefly full or half-bleached in the counties of Down and Antrim, and sent to Dublin and Belfast, whence they were exported to different ports in Great Britain. About 40 weavers attended, all of whom resided in the county, and some six buyers.

Antrim County.—This was the largest weaving county in the province, with six largely attended brown-linen markets. There were two County Inspectors, one of whom had charge of the markets of Lisburn and Belfast, and the other of those in Ballymena, Ballymoney, Portglenone, Randalstown, and Ahoghill. A visit was paid by the Secretary to Messrs. Coulson's damask factory in Lisburn, and details of a number of new looms, for which the Board of Trustees had granted a sum not to exceed £1,000, are given. The linens shipped on bounty from Belfast were required to be examined at the Customs House, which the trade stated was a very inconvenient place, and the White Linen Hall was suggested as a future place of examination. From the report, it appears that considerable quantities of sail-cloth were made in Belfast, manufactured from mill-spun yarn. This yarn was spun at Mr. William Tytler's mill, at Knockboy, near Ballymena, also at Mr. Samuel Smith's mill, at Balnamore, near Ballymoney, and at Mr. William McCrum's mill, at Kennedies, near Armagh, and some from Mr. Ferguson's mill at Cyder Court, near Crumlin. The mill of Mr. Samuel Smith, of Balnamore, was visited by the Secretary. This establishment, in the year 1809, was the property of Mr. Josiah Bryan. At the time of the Secretary's visits, the proprietor presented the following return of his machinery.

Flax-preparing machinery:—Fifteen hacklers, eight roving-spindles, four spreading-tables, four drawing-frames.

Flax-spinning machinery:—Spindles	300
Tow-preparing machinery:—Three carding engines, eight roving spindles.	
Tow-spinning machinery:—Spindles	120
Total spindles	420

The above specification is an exact copy from Mr. Corry's report, and is presented to the reader in the original form, though obviously inaccurate.

While in Belfast the Secretary was presented with a petition, addressed to the Board, from some of the governors of the House of Industry. This petition read as follows:—

"That since your memorialists had the honour of addressing your Honourable Board, September 16th, 1814, and receiving your liberal order for one hundred wheels and twenty reels, the House of Industry in this town has been carried on by voluntary subscription, with the same energy and public spirit as formerly. Mendicity has been nearly abolished, sick and indigent families have had aid in food and fuel afforded them, and many have been furnished with the means of industry who had no other means of employment. The spinning of linen-yarn is now carried on under the direction of your memorialists to even a greater extent than formerly, and this at a heavy loss to the funds of the establishment. Wheels and reels are lent to females who could not otherwise be employed. Flax is afforded them, their yarn received, and an adequate price paid for their labour. By this means, some support is afforded to the families of many manufacturers and labourers, when the males can procure no employment. At present, upwards of four hundred and fifty females are employed spinning flax given out by your memorialists, and the number of applicants is daily increasing, but the funds are inadequate to procure the necessary supply of wheels. The increased demand for flax has rendered it necessary that your memorialists should extend the hackling department, which is likewise carried on in this institution, the necessary implements for which they are also at present much in want of.

"Your memorialists humbly request that your Honourable Board will please to consider the premises, and, as the patrons of the linen manufacture and friends of the industry and comfort of the poor, grant the committee of the House of Industry in Belfast, in this time of extraordinary pressure, such further supply of wheels, reels and hackles as to your wisdom may seem fit. Your compliance will be gratefully acknowledged and procure the blessing of many who are ready to perish.

Signed by order, MICHAEL ANDREWS,
Belfast, 10th Oct., 1816. *Chairman.*

(To the Trustees of the Linen and Hempen Manufacture.)"

The brown-linen market held in Belfast every Friday commenced at ten o'clock, and concluded at any time between twelve and two. "This market is held in the commodious hall off Donegall Street, enclosed with high walls and arched shades for the accommodation of the buyers in bad weather. It was first built by the late Marquis of Donegall, and since rebuilt by the linen-drapers of Belfast, who have added a new room to it for accommodation of the County Inspector."

There was only one description of linen brought to this market—stout yard-wides, thirty-eight inches broad when brown, and twenty-five yards long. The average price was supposed to be 3/4 per yard. A small portion of the goods was exported to Scotland, brown, the heavier goods to London and the south of England, and the lighter to America and the West Indies; a considerable quantity was sent to Dublin. The average number of webs sold in this market would number weekly one thousand, 38 inches broad when brown, and from sets of 16^{oo} to 22^{oo}. Three-fourths of the weavers who attended this market were natives of the county, and one-fourth came from County Down. A great quantity of the linen made in the county of Down was sold in the county of Antrim. Four hundred manufacturers on an average, and about thirty buyers, attended Belfast market. The richer manufacturers brought parcels from ten to forty pieces.

Lisburn Market.—According to the returns, the sales here exceeded those of any other market. The market was held in a spacious well-enclosed Linen Hall, with a wall forty feet high to shade the sun in summer from the buyers of fine linens. This was to the south side, the other sides were enclosed with walls and sheds for the accommodation of the buyers and sellers in bad weather; all had been built and were kept in repair by the Marquis of Hertford. The webs brought to this market were of the following kinds:—Fine linens, 38 inches broad when brown, and 35 yards long; lawns, 30 inches broad and 26 yards long; brown dowlas, 35 inches broad and 27 yards long, and some 62 to 78 yards long. The prices averaged as follow:—

Fine linens about	3/3½	a yard.
Lawns about ...	2/4	,,
Brown dowlas ...	1/1	,,

A very considerable quantity of the linens and lawns brought to this market was sent in a brown state to England and Scotland. Almost all the dowlas was either consumed at home or sent away in the state in which it came to the market. It was sent to all parts of England and Scotland; some was dyed and sent to the West Indies. The fine linens and lawns were sent to all parts of the world, large quantities to America. The average number of webs sold weekly was 800 of fine linen, 400 of lawns, and 200 of dowlas. Some of the weavers who attended this market lived in County Antrim, but the greater number lived in County Down. The supply of heavy linen came mostly from that county, some from a distance of twenty miles. The lawns and dowlas were made in County Antrim. From three hundred to four hundred weavers attended upon an average. They brought their linens to market in small parcels; some fifty buyers attended.

Ballymena market was held every Saturday in an enclosed hall built by Mr. Adair. The webs sold were three-quarter wides, 52 yards long and 28 inches broad; yard-wides, 25 yards long and 38 inches broad. The three-quarter wides averaged about £2 per piece, and the yard-wides about £2 10s. The three-quarter wides were mostly made up in the brown state, some few bleached. The yard-wides were all bleached at home and sent to Dublin, England, and America. The average number of three-quarter wide pieces sold was 1,200, and about 30 yard-wide pieces. Besides the County Antrim weavers, great numbers attended from County Down, and many from County Tyrone. One thousand weavers attended on an average, and from eighty to ninety buyers. It is to be regretted that the fineness of the goods is not mentioned in this important market. This and the price of each web, and not the price per yard, having been given, causes the information to be indefinite.

Ballymoney market was held on the first and third Thursday in every month, in the open street. The webs brought were three-quarter wides, 50 to 52 yards long, and seven-eighth wide, 52 yards long. The three-quarter wide averaged £1 6s. per piece. The same indefinite information is here again given. The three-quarter wides were all brought to this market in a brown state. The yarn of the seven-eighth wide was all boiled and bleached. The three-quarter wides were all finished in the brown state and afterwards sent to Dublin, England, and America. The seven-eighth wides were all bleached at home. From 80 to 100 seven-eighth pieces and 1,200 three-quarter pieces were sold in the middle market. From this it would appear that the market was held once a month, with an intervening one every fortnight, at which only the narrower linens were sold. From eight to nine hundred weavers attended—a great number from the County Londonderry. About a dozen buyers attended the monthly market for seven-eighth wide linens and about sixty for the three-quarter wides.

Portglenone market was held on the first and third Tuesdays in every month, in the open street. The webs were all three-quarter wide, from 50 to 52 yards long, the average price being £2—mostly finished in the brown state and sent to England, America, or Dublin. Many of the weavers attended this market from the County Londonderry, and also from Tyrone, the average number being about six hundred, with thirty to forty buyers.

Ahoghill was a monthly market, held on Fridays in the open street, the webs were seven-eighth wides, fetching from £3 10s. to £4 per piece, being 50 to 52 yards long, and yard-wides, 25 yards long, selling at £2 10s. The linens sold were bleached at home and sent to Dublin, England, and America. A great number of weavers came to this market from County Londonderry; about 400 attended on an average and 20 to 30 buyers.

Londonderry County.—The principal linen-markets were those of Derry, Coleraine, Moneymore, Maghera, Magherafelt, and Kilrea. In the lengthy report which Mr. Corry gives of this county, a vast amount of matter is written about the many abuses attending the sealing of linens and the remedies proposed. In Londonderry city there was a flax-market. From the official report of the Customs House there, the quantity of rough flax exported from the port of Derry was—

Year ending 5th January, 1814	...	17,553	cwt.
,, ,, ,, 1815	...	7,064	,,
,, ,, ,, 1816	...	9,511	,,
	Total	34,128	,,

The market price of rough flax in Derry in those years, and the value of the total exports of each year, were as follows :—

To 5th January,	1814	-	£4	7	7	per cwt.,	total	£76,867	10	3
,, ,, ,,	1815	-	3	19	2	,, ,,	,,	27,061	13	4
,, ,, ,,	1816	-	3	10	4	,, ,,	,,	33,447	0	4
							General Total	£137,376	3	11

The principal export was to England, naturally, we presume, for the spinning-mills there. This export of flax was of modern date, and there being no legislative regulations in existence on the subject, it was requested that the flax-market should be put in charge of an officer of the Board. Scutch-mills were very numerous in County Londonderry. An account of the quantity of rough and hackled flax exported from the various parts of Ireland, and country of destination, during the three years mentioned in the above table, will be furnished later on. The above statement of Londonderry's exports is of interest in that it gives the value per hundredweight of the flax, which works out at about £79 a ton, or somewhat less than 10/- a stone, which would be the price, plus carriage and charges, paid by the English spinners at that period.

The following regulations for the sale of flax in the market of Londonderry were afterwards prepared by an Inspector appointed, and submitted to and approved of by the trade. These were afterwards recommended for the markets in Newry, Belfast, Drogheda, and Limerick :—

" All flax brought to market shall be sold within the custom gaps of said market.

" There shall not be any flax sold, or exposed to sale, before 9 o'clock in the forenoon, or after 12 o'clock at noon, on the respective market-days, between 25th September and 25th March following, nor before 8 o'clock in the forenoon, and 12 o'clock at noon, between 25th March and 25th September following.

"All flax brought to market shall be made up in bundles of 31 lbs. each, with a disengaged head to each bundle.

"All the flax contained in each bundle shall be laid in stricks, untied at the ends, and shall be properly cleaned, free from stalk or croppings, and of equal quality throughout ; to be bound with three bands of flax, of same quality as contained therein.

"All purchasers are required to give an undertaking not to purchase from jobbers, and, in order to prevent the impositions hereunto practised by forestallers and jobbers on the sellers, each merchant who shall purchase by an agent or broker shall return his name to the Inspector, that it may be put in his office, for the information of all persons bringing flax to market.

"In order to give every facility to the trade, the Inspector shall have an office in the most central part of the market, for the purpose of hearing and deciding all disputes.

WILLIAM MARSHALL,
Inspector."

A contention arose in connection with traffic over the Bridge of Derry. Those engaged in the linen trade believed, or, at all events, contended, that all linen webs, wheels, reels, hackles, looms, kelp, and potashes were, by law, exempt from the payment of toll in passing over that bridge, but tolls were nevertheless demanded and levied for these articles.

A weekly market for linens was held in Derry town every Wednesday, in an enclosed linen hall in Rosemary Lane, near the centre of the city, which was built by a family of the name of Hamilton, who received twopence per web for every web sold therein.

The linens sold in this market were three-quarter and seven-eighth wide. The three-quarters ranged from 50 to 100 yards long and were of a strong, coarse quality. The seven-eighths were from 48 to 56 yards long, strong, good linen.

The average price of the three-quarter was about 7d. per yard, that of the seven-eighth about 18½d.

All the linens came to the market in the brown state, the yarn of the best quality having got about two boils before it was woven.

The three-quarter linens were mostly exported to England brown, and used there for shirts, smock frocks, light tents, etc. The seven-eighth linen was bleached at home, was principally used for shirtings, and consumed in England and the Colonies. One-third of the weavers who brought cloth to the market resided in the county, one-third came from Donegal, and one-third from the county of Tyrone. About 150 weavers attended and 70 buyers.

Coleraine was a weekly market, held every Saturday in the open street. There had been two neat well-built linen halls here, well enclosed, one on the Antrim side of the town and the other on the Derry side, the former built by the Rice family and the latter by the Sterling family; but, owing to competition, these were never used as linen halls, being converted to other purposes.

Linens sold were three-quarter and seven-eighth wide. The average price of the former was 5d. The seven-eighths, commonly called "Coleraines," were generally of fine quality, and sold at an average of 2/- a yard. The different linens brought to this market came in the brown state, but the very fine "Coleraines," although called "brown," were made of fully half-bleached yarn, therefore might be denominated nearly half-bleached. The three-quarter linens were bleached at home, then sent to England, where they were made up in imitation of foreign goods and sent to the West Indies, to be used in linings, shirts, etc. The finer linen was bleached, and was fit for shirtings, for use in England, Ireland, and Scotland. Three-fourths of the weavers attending this market lived in Derry County, the remainder in Antrim. About 250 attended and 26 buyers.

Moneymore was a monthly market, held on the 21st day of every month. Three-quarter and seven-eighth wide linens were sold at the respective average prices of 10d. and 18½d. a yard. The former were beetled brown, sent to England, there made up into what were called Platillas, Creaghs, etc., and then sent abroad. (Reference will be made under Spain and Portugal to these two classes of linens. The latter mentioned above was called "Creas" by the Spaniards, and "Crees" by the French.) The seven-eighth was bleached at home, and, being of a light, thin texture, was mostly sent to America and the West Indies, and there made up into shirts. Three-fourths of the weavers who brought cloth to this market resided in the county, and one-fourth in Tyrone. About a thousand weavers attended, and one hundred buyers. Seeing that only about 500 webs of each class were exposed—being 1,000 in all—it would appear that the monthly work of a weaver was one web. Each web was about 52 yards long.

Maghera was a monthly market, held in the open street on the first Tuesday in each month. All the linens were seven-eighths wide, the average price 20d. to 3/6 per yard, fitted for making very fine shirts. and mostly sent to America, the West Indies, and warm climates. All the weavers, numbering 150, resided in the county; about 40 buyers.

Magherafelt was a monthly market, held in the open street on the second Thursday of each month. The linens were three-quarter and seven-eighths, the former of a strong, coarse quality, 52 yards long, the average selling price being 10d. and 18½d. per yard. The three-quarter was used as those at Moneymore, in imitation of the Silesian Platilla, etc. The broader linen was finer, and mostly sent to America for shirtings. Some 500 weavers attended, three-fourths of whom resided in the county, and one-fourth in Tyrone, and about 80 buyers.

Kilreagh was a monthly market, held in the open street on the second Wednesday. All the linen was three-quarter, the yarn fine, but the quality of the linen thin; the average price was 9d. a yard; it was beetled and sent to England to be made up into Platillas, Creaghs, etc. 500 weavers attended this market, three-fourths of whom resided in the county, the remainder came from County Antrim. About 40 buyers on an average attended each market.

DONEGAL COUNTY.

This county, with the exception of the three linen-markets, was entirely a yarn county. There were upwards of thirty yarn-markets in it. The linen-markets were held at Rathmelton, Letterkenny, and Stranorlar. At Buncrana there was a spinning-mill, which, in 1806, belonged to the firm of Crookshank, Kennedy & Co., and at the time of the report belonged to Mr. James Wilson. The following is the specification of machinery as given in the report:—

In the Mill.

13 Spinning-frames, 1,240 spindles.
8 Carding-engines.
14 Spindles of flax-rovings and 14 spindles of tow-rovings.
4 Slivering-frames.
12 Reels, calculated to reel at a time 18 to 20 hanks each.
36 Sets of hackles.
2 Warping-machines and 18 sets of wheels and swifts for winding.

At the Factory.

6 Dressing-frames.
25 Weighty and light sail-cloth looms.

In addition to the machinery mentioned above, there were upwards of 500 spindles and the necessary preparing in the mill, but not erected.

In this mill and factory were employed 140 male and female apprentices from the Foundling Hospital and Incorporated Society, exclusive of all the weavers. To the apprentices were given lodging, clothing, diet, and education.

There was another spinning-mill in this county; namely, that of Mr. Nathaniel Scott, of Rathmelton. In this mill were—

300 Flax and tow spindles.
4 Carding-engines.
8 Sets of hackles.
6 Flax-rovings.
4 Tow-rovings.
2 Spreading-tables, with drawing-frames.
4 Reels.
1 Warping-mill.
9 Looms.

The market reports are as follow:—

Rathmelton, a weekly market held every Tuesday in the open street, about the centre of the town. The linens sold were three-quarter, made of tow-yarn and of middling quality, value from 5½d. to 8d. per yard, and seven-eighths, made of flax-yarn of good quality, which sold at from 15d. to 20d. a yard. The coarser goods were mostly sent to Manchester and other parts of England, in the state they were purchased in the market. The finer were bleached and sent to the Dublin and London markets. The market was small, about 80 webs a week being sold. All the weavers resided in the county, numbering on an average 80, and 14 buyers attended.

Letterkenny market was held every Friday. Three breadths of linens were sold here: three-quarter of tow-yarn and of middling quality, seven-eighth of good quality, and yard-wide of good quality. The average prices were—three-quarter wide 7½d. per yard, seven-eighth wide 18d. per yard, four-quarter or yard-wide 2/3 per yard.

The bulk of the linen was purchased by jobbers, and taken by them to Derry market, where it was sold to the principal merchants and commissioners, part for the purpose of bleaching in the county, and part for exporting to England in a brown state. The bleached linens were sent to Dublin and London. The three-quarter wides were mostly sent to Manchester and other parts of England. The yard-wides were purchased for Irish consumption, as well as exported. The seven-eighths were used for shirting linen. Fifty-four weavers attended, all of whom resided in the county; fourteen buyers.

Stranorlar market was held every Saturday in the open street, about the centre of the town. Here were exposed three-quarter linen made of tow-yarn, and selling at 7½d. a yard, and seven-eighths linen of good quality at 17½d. per yard. The former went for the greater part to Manchester, the latter, after bleaching, to the Dublin and London markets. The weavers numbered 40, all residents in the county, and 12 buyers attended. It will be seen from the list of linens sold, printed at the end of the market reports, that Donegal was a very poor weaving county.

COUNTY CAVAN.

This was a great yarn county; yarn was made and sold to a great extent in all its numerous fairs and markets. Its principal linen-markets were those of Cootehill, Ballynagh, Killeshandra, and Arvagh. Serious abuses appear to have crept into Cootehill market, in the matter of sealing linens and jobbing—"morning jobbing," as the trade termed it, that is, buying and selling in the morning, before the market began, prevailed to a great extent. Much of this was attributed to the seal-masters, many of whom were publicans who had solicited seals for the mere purpose of bringing custom to their houses, and these were the principal jobbers in the market. The webs were brought to the public-houses in the morning to be sealed, and this allowed facilities to the seal-master and publican, combined, to make his bargain with the weaver and to get the pick of the cloth, to the loss of the regular buyer. At each of the other three markets there was but one seal-master appointed, and none of the Cootehill abuses prevailed. According to law, a publican was not permitted to be a seal-master. At Ballynagh market the seal-master was stated to be a publican; but as his business of inspecting and sealing linen had always been conducted within the market precincts, and with every regularity, an effort was made to retain his services by endeavouring to establish a distinction between the house he kept and that of a publican. It was contended that there was no tap-room in his house, with boxes and benches set out, to which people came for the sole purpose of drinking spirits; that the spirits sold by him formed part only of the refreshments called for by the frequenters of the house, as in the case of an inn; but a resolution of the Board, dated 17th April, 1798, was too explicit to admit of any modification. It was as follows: "No person who shall from henceforth be appointed a seal-master of brown linen shall be permitted to keep a public-house for the sale of spirituous liquors or malt liquors, or shall, directly or indirectly, retail or deal in spirituous or malt liquors, or use house, booth, tent, or building, where malt or spirituous liquors are retailed." Those conditions were incorporated in every bond that had been executed to every brown seal-master, and formed part of the bond executed by the seal-master in question. Such evasions of the law as took place at Cootehill were attempted not in County Cavan alone, but in many markets in the province.

Cootehill market was held every Friday in the open street. The linens sold were sheeting 44 inches wide, also yard-wide linens and a few sheetings 54 inches wide, the average prices being as follow:—

Sheetings	...	17d. per yard.
Yard-wides	...	14d. „ „
Broad sheetings		2/- „ „

The linens were all bleached at home and sold in Dublin and London for shirts, sheets, etc. The weavers lived in the counties of Monaghan and Cavan; there were about 200, and 30 buyers.

Ballynagh market was held every Saturday in the open street. The linens sold were called seven-eighths, but seemingly were somewhat narrow, being only from 30 inches to 31 inches broad. The average price was 7½d. per yard. Most of the linens went to England in the brown state. The weavers, numbering 200, came from the counties of Longford, Leitrim, and Cavan; 15 buyers attended.

Killeshandra market was a weekly one, held every Wednesday in the open street. The trade was exactly the same as at Ballynagh. About 250 weavers attended from Leitrim and Cavan, and 15 buyers.

Ardagh market was held every Friday. The trade was the same as at the two preceding markets. The weavers, numbering 150, came from Longford, Leitrim, and Cavan. About 12 buyers attended.

MONAGHAN COUNTY.

In this county the matter of sealing linens had fallen on evil ways. Many of the brown seals had got into possession of publicans, who had, themselves, become jobbers and traders, and others had fallen into the possession of persons of so low a condition in life that no redress could be looked for from them whenever a loss was sustained by deficiency of measure. Many seals of persons, long since deceased, had been for years in the possession of unauthorised people. The flax-market of Ballybay was very extensive, but the flax was very unclean and unsaleable, only the best quality was bought for the English markets. It was feared the market would decline, unless placed under legislative regulation, owing to competition with foreign flax, which, although of inferior quality, was much better put up—better "mannered" is the more comprehensive word used by Mr. Corry. A very extensive buyer at this market explained that the greater part came in a rough state from the scutch—some came hackled. With respect to quantity, some of it came in bundles, the bundles varying in size and weight, some came in sacks, the flax loosely thrown into them, some in aprons-full, and some in mere handfuls, all being sold by weight. Various expedients were used to increase it, damping being one very injurious method employed. The same irregularities existed in Monaghan flax-market. The following are the market reports of this county:—

Monaghan, held every Monday in the open street. The webs brought here were from 33 inches to 37 inches broad. The description and average price were as follow:—

6^{00}, 7^{00}, and 8^{00}	8½d. per yard.
9^{00}, 10^{00}	11½d. ,, ,,
11^{00} and 12^{00}	14½d. ,, ,,

One-half of the first four kinds went to England in a brown state, there to be dyed different colours for tradesmen's uses, the remaining half was bleached at home and sent to England. The 10^{00}, 11^{00}, and 12^{00} linen, to the extent of half quantity, was bought for dyeing at home, the remainder was full-bleached for various uses. About 300 weavers attended, all of whom lived in the county, and about 25 buyers.

Ballybay market was held every Saturday in the open street. The average prices of webs were—

6^{00}, 7^{00}	6½d. per yard.
8^{00}, 9^{00}	8½d. to 9½d. per yard.
10^{00} and 11^{00}	13d. per yard.

Half of the sets from 6^{00} to 10^{00} was exported to England and there dyed blue for upholsterers' use. One-fourth was half-bleached in different parts of England and the remainder full-bleached in Ireland, and sold in Dublin.

The 11^{00} and 12^{00} linens were full-bleached and sent to Dublin and London for sale for shirting, etc. All the weavers, numbering 300, lived in the county, except a few who came from Kingscourt and Bailieborough, in Leitrim; 25 buyers attended.

Castleblayney market was held every Wednesday in the open street. The description and average prices of the webs were—

6^{00}, 7^{00}, and 8^{00} from 6½d. to 9½d. a yard.
10^{00} and 11^{00} ,, 12d. a yard.

One-half of the 9^{00} and 10^{00} was bleached at home and used for shirting, etc., the other half was exported in the state it came to the market and dyed different colours for frocks, lining, etc. The remainder was sent, brown, to England, or bleached at home. Of the 200 weavers who attended this market, all lived in the county, with the exception of a few who came from the county of Armagh; 18 buyers attended.

Clones market was held every Thursday in the open street. The webs exhibited were—

6^{00}, 7^{00}, 8^{00}, and 9^{00} at 8½d. per yard, average.
10^{00}, 11^{00}, and 12^{00} ,, 13½d. ,, ,, ,,

One-half of the 6^{00}, 7^{00}, 8^{00}, and 9^{00} was sent to England, brown, the other half bleached at home. One-half of the 10^{00}, 11^{00}, and 12^{00} was dyed different colours at home, and sent to England, the remaining half was bleached for different uses. About one-half of the 200 weavers resided in the county, the others in Fermanagh and Cavan; 12 buyers attended.

Glasslough market was held every Friday. The description of linens and average price are as follow:—

7^{00} and 8^{00} from 8½d. to 9½d. per yard.
9^{00} and 10^{00} ,, 12d. per yard.
11^{00} and 12^{00} ,, 15d. ,, ,,

The first two kinds were sent to England, and dyed black and blue, for lining, etc. The 9^{00}, 10^{00}, 11^{00}, and 12^{00} were all full-bleached—part of them consumed and the remainder exported. The greater number of the 80 weavers attending lived in the county, some few came from Tyrone and Armagh; 10 buyers attended.

FERMANAGH COUNTY.

Of this county it has been impossible to procure any information from the statistical surveys. Some accounts are given of it in Stephenson's report. Fermanagh never arrived at any degree of success as a linen-producing county. There was but one regular market for linens, that of Enniskillen. There were two fairs in the year at Maguiresbridge, at which linen was sold to the amount of £500. Brookeborough fair, at which linens were formerly sold, had become exclusively a yarn-market. County Fermanagh was a very great yarn county. A large part of the yarn made there was sent into other counties in the province, particularly into Tyrone, to be manufactured into linen.

Enniskillen market was held every Thursday in the open street; only seven-eighth plain linens were sold. The length of each single piece was from 25 to 26 yards, the double pieces from 50 to 52 yards. The average price was—

For 9^{00} ... 8½d. per yard.
,, 10^{00} ... 10½d. ,, ,,
,, 11^{00} and 12^{00}, 12½d. ,, ,,

In general all the linens were bleached at home, except a few exported to England in a brown state. All the bleached linens went to Dublin market, except a few sold to shop-keepers in the county.

Before the American War of Independence, one-fourth of the linen bought in this market went to America. All the manufacturers lived in the county except a few, who lived in the county of Cavan. About 150 weavers attended and 25 buyers. This brings us to the end of the summary of these somewhat monotonous market reports.

Value of linens sold at each linen-market in the province of Ulster:

County.	Market.	Value of Sales at each Market.	Annual Value of Sales.
Armagh	- Armagh	£3,800 0 0	£197,600 0 0
	Lurgan	£1,850 0 0	£96,200 0 0
	Tandragee	£1,000 0 0	£52,000 0 0
	Portadown	£150 0 0	£7,800 0 0
	Annual total for County Armagh,		£353,600 0 0
Tyrone	- Dungannon	£4,000 0 0	£208,000 0 0
	Strabane	£2,380 0 0	£123,760 0 0
	Cookstown	£1,300 0 0	£67,600 0 0
	Stewartstown	£630 0 0	£32,760 0 0
	Newtownstewart	£400 0 0	£20,800 0 0
	Fintona	£1,600 0 0	£41,600 0 0
	Omagh	£920 0 0	£47,840 0 0
	Ballygawley	£650 0 0	£16,900 0 0
	Annual total for County Tyrone,		£559,260 0 0

County.	Market.	Value of Sales at each Market.	Annual Value of Sales.
Down	Banbridge	£1,038 0 0	£53,976 0 0
	Newry	£922 0 0	£47,944 0 0
	Downpatrick	£750 0 0	£39,000 0 0
	Kilkeel	£400 0 0	£20,800 0 0
	Rathfriland	£66 0 0	£3,432 0 0
	Ballynahinch	£17 0 0	£884 0 0
	Hillsborough	£8 0 0	£416 0 0
	Kirkcubbin	£300 0 0	£7,800 0 0
	Annual total for County Down,		£174,252 0 0
Antrim	Belfast	£4,000 0 0	£208,000 0 0
	Lisburn	£5,000 0 0	£260,000 0 0
	Ballymena	£2,500 0 0	£130,000 0 0
	Ballymoney	£2,200 0 0	£52,800 0 0
	Portglenone	£1,200 0 0	£28,800 0 0
	Ahoghill	£1,500 0 0	£18,000 0 0
	Annual total for County Antrim,		£697,600 0 0
Derry	Derry	£1,130 0 0	£58,760 0 0
	Coleraine	£850 0 0	£44,200 0 0
	Moneymore	£2,500 0 0	£30,000 0 0
	Maghera	£1,000 0 0	£12,000 0 0
	Magherafelt	£1,600 0 0	£19,200 0 0
	Kilrea	£1,000 0 0	£12,000 0 0
	Annual total for County Derry,		£176,160 0 0
Donegal	Rathmelton	£227 10 0	£11,830 0 0
	Letterkenny	£160 0 0	£8,320 0 0
	Stranorlar	£130 0 0	£6,760 0 0
	Annual total for County Donegal,		£26,910 0 0
Monaghan	Monaghan	£1,000 0 0	£52,000 0 0
	Ballybay	£1,200 0 0	£62,400 0 0
	Castleblayney	£850 0 0	£44,200 0 0
	Clones	£650 0 0	£33,800 0 0
	Glasslough	£240 0 0	£12,480 0 0
	Annual total for County Monaghan,		£204,880 0 0
Fermanagh	Enniskillen	£450 0 0	£11,700 0 0
	Annual total for County Fermanagh,		£11,700 0 0

County.	Market.	Value of Sales at each Market.	Annual Value of Sales.
Cavan -	- Cootehill	£1,000 0 0	£52,000 0 0
	Ballynagh	£500 0 0	£26,000 0 0
	Killeshandra	£400 0 0	£20,800 0 0
	Arvagh	£400 0 0	£20,800 0 0

Annual total for County Cavan, £119,600 0 0

Total value, £2,323,962 0 0

Appended to the above tables is the following note: "The foregoing account of the sales of the province is subject to this observation, namely, that linens bought by jobbers in one market and sold by them in another, may be said to be twice entered. I do admit it, but still I think that the sum here stated is rather within than without the truth, because the sales of linen at all the great fairs of the province, which are not included here, are so considerable, and so much more than countervail any reduction to be made on this account, that instead of deducting from the general amount, I should rather be disposed to add to it, and say that the total value of the home sales of brown linen in the province of Ulster amounted annually to about two and a half millions sterling."

A comparison between the sales in the Ulster markets and those in the other three provinces, with the addition, to the latter, of linens not returned in the regular markets, shows Ulster's output, at the time, to be more than three times that of the combined output of Leinster, Munster, and Connaught. If we accept Mr. Corry's figures of two and a half millions sterling for Ulster, the output was nearly four times that of the other provinces. A great amount of linen for domestic use was manufactured all over the country, the quantity of which could not be ascertained. Although the market reports give the values sold in each county, it will be seen that these do not represent the accurate production of the counties, as weavers from one county sold in another; and further, it must be remembered that the figures given, both for Ulster and for the other provinces also, are for brown linens, the price of which, when bleached and finished, would be considerably enhanced. Taking the value of Ulster's produce at £2,500,000 and of the other three provinces at £651,752, we get a total of brown linens, £3,151,752. Assuming that three-fourths of this was bleached and finished, and estimating 1/- per yard, and 4d. per yard for bleaching and finishing, we have an addition of £700,000, making a total value of £3,851,752. In 1810, we have noted the exports from Belfast port to be £2,272,924, the average annual value passing through Dublin Linen Hall from 1813 to 1816 was £900,000; total, £3,172,924.

There would remain for shipment from other ports, or retention in the country, goods to value of £679,828.

The cost of bleaching and finishing to-day does not exceed 2d. per yard, but we have taken the price of the time given in Wakefield's account of Ireland, 1812, Vol. I., page 693. If we take these figures as a fair indication of Ireland's output of linens and their destination, we find that nearly five-sixths of the linen accounted for was exported from Dublin and Belfast. Londonderry exported to Great Britain and America over three and a half million yards in 1802, and although the total output of that county had since decreased, no doubt considerable quantities were shipped from there, and Cork would account for some fair exports, especially in canvas and coarse goods. Some quantity would naturally remain and be consumed in Ireland, to which would be added all linens manufactured and sold privately, and of which no account had been taken.

Reference has been made to the brown seal-masters, who were the persons entrusted with the seals or stamps for sealing or stamping brown linen. These people had, or should have had, no property in the linen, but received remuneration from the weavers for measuring and stamping the cloth. White seals were, generally speaking, in the hands of bleachers having large capital in the trade, and more than ample security for the amount of their bonds. They were usually proprietors of the linen which they stamped. At the time we write of there were in Ulster 1,616 brown and 1,596 white seals issued.

CHAPTER XIV.

Flax Sowings in Ulster, 1816

We now give a brief report from the returns of the County Inspectors, showing the quantity and origin of flax-seed sown and the land areas under flax in Ulster, for the year 1816.

Antrim.—10,000 hogsheads sown, covering about 20,000 acres; 3,000 hogsheads were Dutch, 100 English, 200 home-saved, and 6,700 American.

Armagh.—8,040 hogsheads sown, 7,000 of which were American, 260 Riga, 400 Dutch, 200 British, and 180 home-saved; about 15,550 acres.

Londonderry.—6,857 hogsheads, 6,757 of which were American, 100 Dutch; about 16,000 acres.

Tyrone (East).—2,600 hogsheads, 1,600 of which were American, 500 Dutch, 300 Riga, and 200 home-saved; 4,500 acres.

Tyrone (West).—7,500 hogsheads, 5,500 of which were American, 1,100 Dutch, 400 Riga, 100 British, and 400 home-saved; about 16,875 acres.

Donegal.—3,000 hogsheads, 2,500 of which were American, 100 Riga, 200 Dutch, and 200 home-saved; 6,500 acres.

Down (East).—2,800 hogsheads, 2,650 of which were American, 100 Dutch, and 50 British; 4,000 acres.

Down (West).—2,400 hogsheads, 1,800 of which were American, 580 Riga or Dutch, and 20 home-saved; 4,200 acres.

Fermanagh.—1,428 hogsheads, mostly American and Riga, but chiefly American ; 2,500 acres.

Cavan.—1,800 hogsheads, three-fourths of which were American, the remainder Dutch, Riga, English, and home-saved ; 3,300 acres.

Monaghan.—2,950 hogsheads, 970 of which were home-saved, 1,800 American, 40 Riga, and 140 Dutch ; 5,960 acres.

This shows a total sowing in Ulster of nearly 100,000 acres—more than double that of the period immediately preceding outbreak of war in 1914 : the acreage has greatly increased since. In a former part of this work a note was made of the difficulty in procuring European seed owing to Continental wars, and on this account American seed was introduced. The reference will be found in the Clare survey account. Seemingly, the objections to American seed had been overcome.

CHAPTER XV.

Ulster Exports of Flax, 1813, 1814, 1815

We give below an account of the rough flax exported from Ireland in the years 1813, 1814, and 1815, distinguishing the ports from whence and the place to which exported. The reports from which this is taken include the amount of hackled flax, but the quantity being exceedingly small, we have omitted it here.

1813.

Ports from whence Exported.	Countries to which Exported.				Total Export.
	England.	Portugal.	Scotland.	Isle of Man.	
	cwt.	cwt.	cwt.	cwt.	cwt.
Belfast ...	4,360	60	2,210	—	6,630
Coleraine ...	36	—	—	—	36
Cork ...	9	—	—	—	9
Donaghadee .	1,365	—	68	—	1,433
Drogheda ...	3,242	—	—	—	3,242
Dublin ...	85	—	35	2	122
Dundalk ...	218	—	—	—	218
Galway ...	8	—	—	—	8
Limerick ...	917	—	1,001	—	1,918
Londonderry	4,493	480	12,580	—	17,553
Newport ...	9	—	—	—	9
Newry ...	32,550	—	5,117	30	37,697
Strangford ...	120	—	100	96	316
Totals ...	47,412	540	21,111	128	69,191

1814.

Ports from whence Exported.	Countries to which Exported.					Total Export.
	England.	Scotland.	Spain.	Sweden.	I. of Man.	
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
Belfast ...	1,514	269	20	—	—	1,803
Donaghadee .	824	94	—	—	8	926
Drogheda ...	985	—	—	—	—	985
Dublin ...	10	30	—	—	—	40
Dundalk ...	127	—	—	—	—	127
Limerick ...	632	838	820	150	—	2,290
Londonderry	2,495	4,419	—	—	—	7,064
Newry ...	9,774	406	—	—	35	10,215
Sligo ...	—	—	820	—	—	820
Strangford ...	9	—	—	—	84	93
Totals ...	16,370	6,056	1,660	150	127	24,363

1815.

Ports from whence Exported.	Countries to which Exported.						Total Export.
	England.	Madeira.	Portugal	Scotl'nd.	Spain.	I. of Man.	
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
Ballyraine ...	57	—	—	—	—	—	57
Belfast ...	2,914	—	—	665	—	2	3,581
Cork ...	150	—	60	—	—	—	210
Donaghadee .	1,594	—	—	120	—	—	1,714
Drogheda ...	281	—	—	—	—	10	291
Dublin ...	419	3	—	—	—	—	422
Dundalk ...	246	—	—	—	—	—	246
Larne ...	10	—	—	1	—	—	11
Limerick ...	113	—	—	1	392	—	506
Londonderry	3,928	—	—	5,583	—	—	9,511
Newry ...	12,350	—	—	854	—	4	13,208
Strangford ...	5	—	—	—	—	101	106
Totals ...	22,067	3	60	7,224	392	117	29,863

CHAPTER XVI.

Ulster Flax Markets, 1816

The following returns were made by the County Inspectors, giving the names of the different towns in their respective districts where flax was sold and the average prices, whether by the pound, the stone, or hundredweight:—

COUNTY ARMAGH.

Armagh, average prices 5/–, 6/–, 7/–, and 8/– per stone of 16 lb. Markethill, 8/–, 9/–, 10/– per stone. Tandragee, 8/–, 9/–, and 10/–.

COUNTY TYRONE.

At the markets of Dungannon, Ballygawley, Auchnacloy, Fivemiletown, Fintona, Omagh, Newtownstewart, and Strabane; and at the fairs of May, Carenteel, Aughre, Dromore, Drumquin, Six-Mile-Cross, Beragh, and Gortin. The average price of flax throughout the different towns above mentioned was from 7/– to 8/–, at different periods up to 10/–, and at other times as low as 5/– per stone. In Cookstown, Stewartstown, and Coagh, the price was about 8/8.

COUNTY DOWN.

In the markets of Banbridge, Dromore, Newry, and Rathfriland, the price was 6/3 per stone of 16 lb. In the markets of Downpatrick, Castlewellan, Ballynahinch, Saintfield, and Newtownards, the price was 7/– to 8/–.

COUNTY ANTRIM.

In the markets and fairs of Ahoghill, Ardmoy, Ballycastle, Ballymena, Ballymoney, Craigbelly, Cushendall, Dervock, Glenarm, Larne, Portglenone, and Randalstown, the average price was 8/- to 9/- per stone of 16 lb.

COUNTY LONDONDERRY.

In the markets of Newtown-Limavady, Coleraine, Kilrea, Garvagh, Maghera, Magherafelt, and Moneymore, the price averaged £3 10s. per cwt., or 6½d. per lb. The average price of Derry was £2 10s. per cwt., or 5½d. per lb., flax there being of an inferior quality.

COUNTY DONEGAL.

Flax was sold in Castlefin, Raphoe, Stranorlar, Ballybofey, and Letterkenny. The average price was 5d. to 5½d. per lb. by retail; 6/- to 6/3 per stone of 15 lb., 45/6 to 47/6 per hundredweight of 120 lbs., with an allowance of 4 lb. per cwt. when sold wholesale.

Flax brought to the market to be sold wholesale was tied up in bundles of about 30 lbs. each, that intended for retail was put up in lots of 2 lbs. each. A flax-market was not held every market-day. The flax was usually for sale to those market towns on fair-days and at monthly markets. It was usually bought up by flax jobbers, who took it to Derry or Strabane and there sold it to flax merchants or their agents, chiefly for export.

COUNTY CAVAN.

In Arvagh, Bailieborough, Ballynagh, Bally-James-Duff, Belturbet, Cavan, Cootehill, Killeshandra, Kilnaleck, Kingscourt, Shircock, and Swanlinbar, the average price of flax had been 7/6 per stone, but the quantity sold in some of the markets was very small.

COUNTY MONAGHAN.

In Monaghan, Ballybay, Castleblayney, and Clones, the average price was 5/- per stone of 16 lb.

COUNTY FERMANAGH.

In Enniskillen, rough flax averaged 5/- per stone of 16 lb., and hackled flax, not very clean, 8d. per lb. In Maguire's-Bridge, rough flax averaged 5/6, and hackled flax, tolerably clean, 8½d. per lb.

In the section dealing with Holland and Belgium the treatment of flax will be described and the methods of handling it in Ireland discussed.

CHAPTER XVII.

Ulster Yarn Markets, 1816

Below are given the current prices of yarn in the following markets in the months of September, October, and November, 1816, as taken from returns made by the County Inspectors.

NOTE.—The statute reel is two-and-a-half yards in circumference. 120 threads, each thread being equal to one round, make a cut; twelve cuts make a hank, and four hanks make a spangle. The number of hanks to the pound varies from one to twelve, according to the coarseness or fineness of the yarn. The above note will aid the modern spinner in transforming the various units by which yarn was sold into bundles.

COUNTY ARMAGH.

ARMAGH - - Yarn from one hank to one-and-a-half to the pound sold from 6d. to 8d. per hank. Yarn from two to four hanks from 5d. to 7d.

LURGAN - - Yarn for coarse lawns and diapers from two to three hanks to the pound from 5d. to 7d. per hank. Yarn from four to twelve hanks to the pound sold from 8d. to 1/1 per hank.

PORTADOWN - - Yarn from one to one-and-a-half to the pound sold from 6d. to 8d. per hank. Yarn from three to four hanks to the pound from 5d. to 7d. per hank.

TANDRAGEE - - Yarn from one to one-and-a-half per pound from 6d. to 8d. per hank. Other yarn of four to six hanks from 7d. to 10d.

COUNTY TYRONE.

Dungannon – Tow-yarn about 6d. per hank. Flax-yarn from 6d. to 7d.

Strabane – – Tow-yarn from 5½d. to 7d. Flax-yarn from 6d, to 8d.

Cookstown – – The coarse tow-yarn of one hank of twelve cuts to the pound sold from 5d. to 6d. per hank, or from 1/8 to 2/– per spangle. Tyrone yarn from two to two-and-a-half hanks per pound sold from 2/– to 2/8 per spangle. Derry yarn from three to four hanks to the pound sold from 2/8 to 3/4 per spangle.

Stewartstown – Coarse tow-yarn of one hank of twelve cuts to the pound sold from 5d. to 6d. per hank, or from 1/8 to 2/– per spangle. Yarn from two hanks to two hanks and a half to the pound sold from 2/– to 2/8 per pound.
(The words in the Report "per lb." above should evidently read "per spangle.")

Newtownstewart Tow-yarn from 5d. to 6½d. per hank. Flax-yarn from 6d. to 7d. per hank.

Omagh – – Tow-yarn from 5d. to 6½d. per hank. Flax-yarn from 6d. per hank.

Ballygawley – Tow-yarn from 4½d. to 6½d. per hank. Flax-yarn from 5d. to 6d. per hank.

COUNTY DOWN.

Banbridge – – Flax-yarn from two-and-a-half to five hanks to the pound sold from 5d. to 7d. per hank. Tow-yarn from sixteen to twenty cuts to the pound from 4½d. to 6d. or 7d. per hank.

Newry – – Tow-yarn from 4d. to 6½d. per hank. Flax-yarn from two-and-a-half to four hanks to the pound 4½d. to 7½d. per hank.

Downpatrick – 6^{00}, 7^{00}, 8^{00}, and 9^{00} yarn sold in the market from 5½d. to 7d. per hank. 10^{00}, 11^{00}, 12^{00}, 13^{00}, and 14^{00} yarn sold from 4d. to 6d. per hank. 15^{00}, 16^{00}, and 17^{00} yarn from 6d. to 7½d. per hank.

BALLYNAHINCH - 6^{oo}, 7^{oo}, 8^{oo}, and 9^{oo} yarn sold from 5½d. to 7d. per hank. 10^{oo}, 11^{oo}, 12^{oo}, 13^{oo}, and 14^{oo} yarn from 4d. to 6d. per hank. 15^{oo}, 16^{oo}, and 17^{oo} yarn from 6d. to 7½d. per hank.

KILKEEL - - 9^{oo}, 10^{oo}, 11^{oo}, and 12^{oo} yarn sold from 4d. to 6d. per hank. This yarn was chiefly flax and tow mixed. 13^{oo} sold at 5½d. per hank, flax yarn.

KIRKCUBBIN - 8^{oo}, 9^{oo}, 10^{oo}, and 11^{oo} yarn sold from 4½d. to 6d. per hank. 12^{oo}, 13^{oo}, and 14^{oo} from 4d. to 6d. per hank. 15^{oo}, 16^{oo}, and 17^{oo} from 5d. to 7½d. per hank.

RATHFRILAND - Tow-yarn from 4½d. to 6½d. per hank. Flax-yarn from two-and-a-half to five hanks to the pound from 5d. to 7½d. per hank.

HILLSBOROUGH - Tow-yarn from 4½d. to 7d. per hank. Flax-yarn from the weight of three-and-a-half to five hanks to the pound 5d. to 7½d. per hank; fine yarn extremely low, and unless of superior quality, not in demand.

COUNTY ANTRIM.

BELFAST - - Two-and-a-half to four cut tow-yarn 7d. to 8d. per pound. Five to seven cut flax-yarn 1/- per pound; eight to twelve cut flax-yarn 14d. per pound. (The words "cut" should evidently read "hank" and "lb." also "hank.")

LISBURN - - Forty hanks to the pound brought 4/- each hank. Thirty hanks in the pound 3/6 each hank. Ten hanks in the pound 10d. each hank. The coarser qualities much the same as in Belfast.

BALLYMENA - - Coarse tow-yarn from 2/- to 2/4 per spangle. Two to three hank yarn 2/4 per spangle. Four to five hank yarn from 2/4 to 3/- per spangle.

BALLYMONEY - Coarse tow-yarn from 2/- to 2/4 per spangle. Two to three hank yarn 2/4 per spangle. Four to five hank yarn from 2/4 to 3/- per spangle. Five to eight hank yarn from 3/- to 3/6 per spangle. Eight to ten hank yarn from 4/- to 4/10 per spangle.

PORTGLENONE - Coarse tow-yarn from 2/- to 2/4 per spangle. Two to three hank yarn 2/4 per spangle. Four to five hank yarn from 2/4 to 3/- per spangle.

AHOGHILL - - Coarse tow-yarn from 2/- to 2/4 per spangle. Two to three hank yarn 2/4 per spangle. Four to five hank yarn from 2/4 to 3/- per spangle.

BALLYCLARE - Four hanks to the pound 6d. per hank; all the lower quality 5d. each, and so on.

CRUMLIN - - Four hanks to the pound 5d. each hank.

ANTRIM - - Four hanks to the pound 5d. each hank.

CARRICKFERGUS - Four hanks to the pound 5d. the hank; sail-cloth yarn per hank 10d. in all markets, on account of the great quantity of the stuff worked into it.

COUNTY LONDONDERRY.

DERRY .. - Coarse yarn from 18d. to 2/- per spangle. Fine yarn from 2/- to 2/8 per spangle.

COLERAINE - - Coarse yarn from 18d. to 2/2 per spangle Fine yarn from 2/- to 3/- per spangle.

MAGHERAFELT - Coarse yarn from 14d. to 20d. per spangle. Fine yarn from 2/- to 2/4 per spangle.

MONEYMORE - Coarse yarn from 14d. to 20d. per spangle. Fine yarn from 2/- to 2/8 per spangle.

KILREA - - Coarse yarn from 14d. to 20d. per spangle.

COUNTY DONEGAL.

RATHMELTON - Average price of yarn:—Tow-yarn 2/2 per spangle. Flax-yarn 2/2 per spangle.

LETTERKENNY - Tow-yarn 2/3 per spangle. Flax-yarn 2/3 per spangle.

STRANORLAR - Tow-yarn 2/- per spangle. Flax-yarn 2/2 per spangle.

COUNTY CAVAN.

COOTEHILL - - The quality of yarn in this market was from two to four hanks to the pound, from 5d. to 7½d. per hank.

BALLYNAGH – – Coarse flax-yarn from two to three hanks to the pound from 5d. to 6d. per hank.

KILLESHANDRA – Coarse flax-yarn from two to four hanks to the pound from 4½d. to 6½d. per hank.

ARVAGH – – Flax-yarn about two hanks to the pound 5d. to 6d. per hank.

COUNTY MONAGHAN.

MONAGHAN – – Each quality sold at 2/– per spangle. The quality consisted of 6^{∞}, 7^{∞}, 8^{∞}, 9^{∞}, 10^{∞}, 11^{∞}, and 12^{∞} yarn—the three first mentioned tow-yarn, all good in their kinds.

BALLYBAY – – Each quality of yarn sold at 2/– per spangle, four hanks to the spangle. Same description as above.

CASTLEBLAYNEY – Each quality sold at 1/11 per spangle. Same description as above, but not so good.

CLONES – – Each quality sold at 1/8 per spangle. Same description, but a thin, light make.

GLASSLOUGH – Each quality sold at 2/– per spangle. Same description as above, good quality.

COUNTY FERMANAGH.

ENNISKILLEN – Flax-yarn from two to three hanks to the pound from 4d. to 7½d. per hank. Tow-yarn from fifteen to twenty hanks to the pound from 6d. to 7d. per hank. (The words "hanks to the lb." above mentioned evidently should read "cuts to the lb.")

BROOKEBOROUGH – Little or no yarn sold.

MAGUIRE'S-BRIDGE Flax-yarn from two to two-and-a-half hanks per pound 4d. to 7½d. per pound. Tow-yarn from fifteen to twenty cuts to the pound from 6d. to 7d. per hank.

To facilitate calculation the Scotch and Irish yarn tables are appended, and also a table giving the relative weights of lea and spindle or spangle yarn.

SCOTCH REEL

1 thread = 2½ yards = 90 inches.
120 threads = 1 cut = 300 ,, = 10,800 ,,
2 cuts = 1 heer = 600 ,, = 21,600 ,,
6 heers = 1 hank = 3,600 ,, = 129,600 ,,
4 hanks = 1 spindle = 14,400 ,, = 518,400 ,,
(Note 4⅙ spindles equal one bundle Irish).

IRISH REEL.

1 thread = 2½ yards = 90 inches.
120 threads = 1 lea = 300 ,, = 10,800 ,,
12 leas = 1 hank = 3,600 ,, = 129,600 ,,
16⅔ hanks = 1 bundle = 60,000 ,, = 2,160,000 ,,

Table of the Relative Weights of Lea and Spindle or Spangle Yarn.

Leas per lb.	Weight per Spindle.			Weight per Bundle.			Leas per lb.	Weight per Spindle.			Weight per Bundle.		
	lbs.	oz.	dr.	lbs.	oz.	dr.		lbs.	oz.	dr.	lbs.	oz.	dr.
2	24	0	0	100	0	0	40	1	3	3	5	0	0
2¼	21	5	5	88	14	3½	45	1	1	1	4	7	2
2½	19	3	3	80	0	0	50	0	15	5¾	4	0	0
2¾	17	7	4½	72	11	10	55	0	13	15½	3	10	3
3	16	0	0	66	10	10½	60	0	12	12¾	3	5	5¼
3½	13	11	6¾	57	2	4½	65	0	11	13	3	1	3¾
4	12	0	0	50	0	0	70	0	10	15½	2	13	11¼
5	9	9	9½	40	0	0	75	0	10	3¾	2	10	10½
6	8	0	0	33	5	5¼	80	0	9	9½	2	8	0
7	6	13	11½	28	9	2¼	85	0	9	0½	2	5	10¼
8	6	0	0	25	0	0	90	0	8	8½	2	3	8¾
10	4	12	12¾	20	0	0	100	0	7	10¾	2	0	0
12	4	0	0	16	10	10¾	110	0	6	15½	1	13	1½
14	3	6	13¾	14	4	9	120	0	6	6½	1	11	8
16	3	0	0	12	8	0	130	0	5	14½	1	8	9¾
18	2	10	10½	11	1	12½	140	0	5	7¾	1	6	13¾
20	2	6	6½	10	0	0	150	0	5	1¾	1	5	5½
22	2	2	14½	9	1	7¼	160	0	4	12¾	1	4	0
25	1	14	11½	8	0	0	170	0	4	8¼	1	2	13
28	1	11	6¾	7	2	4½	180	0	4	4¼	1	1	12½
30	1	9	9½	6	10	10½	190	0	4	0⅞	1	0	13¼
35	1	15	15	5	11	7	200	0	3	13½	1	0	0

In the dry-spun trade the mode of counting is as follows :—

No.	8	lea is called	6lb.	yarn.	No.	20	lea is called	2½lb.	yarn.
,,	10	,,	5lb.	,,	,,	22	,,	2¼lb.	,,
,,	12	,,	4lb.	,,	,,	24	,,	2 lb.	,,
,,	14	,,	3½lb.	,,	,,	25			
,,	15				,,	28	,,	1¾lb.	,,
	16	,,	3lb.	,,	,,	30	,,	1⅝lb.	,,
,,	18	,,	2¾lb.	,,	,,	35	,,	1½lb.	,,

This is about the limit of present-day mechanical dry-spinning, but on a wheel the numbers would reach to infinitely finer counts. The table of relative weights of lea and spindle yarn will give the calculation up to 200's lea.

It will be seen by comparing the two tables above that what is termed lb. yarn in the dry trade has reference to the weight of a spindle, or spangle, viz., 4 hanks; thus No. 8's lea is 6 lb. yarn, No. 12's lea 4 lb. yarn, No. 16's lea 3 lb. yarn, and so on.

The mode of calculation, however, adopted in the Irish markets at the time of which we write was on a different basis. Thus if we take Armagh (town) yarn-market we find yarns sold of one to four hanks to the lb. Yarn of one hank to the lb. would weigh four hanks to the spindle, and is No. 12's lea. This was the yarn so commonly spun in the west of Ireland for bandle-linen and other coarse goods, and frequently called pound-yarn. It must not, therefore, be confused with 1 lb. yarn, Scotch reel, which would be 48's lea; 1½ hanks to the lb. would be 16's lea. This would naturally be a cheaper yarn than 12's; and if we look at the Armagh report, it will be seen that either the numbers of the yarn should be reversed or the figures representing the prices. A similar misplacement of the figures occurs in all the market reports. Taking Downpatrick and many other markets, the yarn was evidently sold in accordance with the set to which it would be woven. Probably this was at the time satisfactory. The yarn in Downpatrick was called six to seventeen hundred yarn; the sets of linens sold in Downpatrick linen-market were also from 6^{00} to 17^{00}; apparently, therefore, these denominations of yarns were a known quantity, although appearing vague. It is interesting to note the extremely fine yarn which was sold in Lisburn market. Forty hanks in the lb. would be 480's lea; this at 4/- a hank would amount to £3 6s. 8d. for the present Irish bundle. There is no evidence that this fine yarn was spun in Ulster; the probabilities are that it was made in France, where yarns of even finer counts are sold commercially at the present time; but it is obvious that exceedingly fine cambric or batiste was woven in those days in Ulster.

It is impossible, in many of the markets, to arrive at the counts of yarn. Take, for example, that spun in Londonderry and Donegal. In the former county the distinction is simply between coarse and fine, and in the latter county between tow-yarn and flax-yarn. It is evident that the yarn of these counties would not vary much, and therefore the quality and counts were known, especially in Donegal, where the prices in all these markets varied so little.

CHAPTER XVIII.

Bounties to Encourage Machine Erection

Details, copied from Mr. Corry's report, have already been given of some of the early attempts at spinning by machinery. Appended is a list of the mills in Ulster, with an account of the bounties paid by the Trustees to encourage the erection of spindles, attached to mill machinery, in the province of Ulster. In the English section the class of machinery used at the time will be considered, but it may be said in passing that the details of the machinery already given in this work of flax-mills in Bessbrook, Keady, Balnamore, and in County Donegal, are faithful copies from Mr. Corry's report. It is a known fact that coarse yarns were well spun on the machinery ; but looking at these specifications, not in the light of modern practice, but solely from the standpoint of the machinery then in use, we conclude Mr. Corry has misunderstood the details given.

These mills were erected for the manufacture of yarns suited for sail-cloth, canvas, and duck; and besides the bounties given to the mills, further bounties were granted for the manufacture from mill-spun yarn of the cloths above mentioned at the rate of 1½d. to 2d. per yard, according to their value. To most of the mills factories were attached. The bounties paid by the Linen Board from 1805 to 1814 inclusive, for the manufacture of the materials enumerated, amounted in all to £14,982.

AN ACCOUNT OF BOUNTIES PAID IN PROVINCE OF ULSTER T AND HEMP, FROM COMMENCEMEN

County.	Name of Place.	Name of Claimant.
ANTRIM	Balnamore	Bryan, Josiah
	Knockbuoy	Davison, Alexander
	Cyder Court	Ferguson, John
	Kilnadore	Younge, William & Co.
ARMAGH	Kennedies	McCrum, John & William
	Bessbrook	Nicholsons, Kelly & Johnston
	Bessbrook	Nicholson & Sons
DOWN	Downpatrick	Crookshank, Samuel
	Downpatrick	Crookshank, Samuel
	Newry	Gordon, John
	Comber	Stitt, John & Co.
	Comber	Stitt, John & Co.
DONEGAL	Buncrana	Crookshank, Kennedy & Co.
	Buncrana	Crookshank, Kennedy & Co.
	Buncrana	Crookshank, Kennedy & Co.
	Buncrana	Crookshank, Kennedy & Co.
	Rathmelton	Scott, Nathaniel
TYRONE	Dungannon	Pike, William
	Dungannon	Pike, William
	Dungannon	Pike, William

COURAGE ERECTION OF MACHINERY FOR SPINNING FLAX CONCLUSION OF SAID BOUNTIES.

Spindles Erected.		Rate per Spindle.	Date of Payment.	Amount of Payment.		
Year.	No.					
1809	400	30/-	May 7, 1810	£600	0	0
1808	222	30/-	July 25, 1809	333	0	0
1809	768	30/-	Apl. 17, 1810	1,152	0	0
1809	512	30/-	Apl. 17, 1810	768	0	0
1808	208	30/-	July 27, 1809	312	0	0
1806	1,008	—	Mar. 10, 1807	1,446	12	10*
1809	208	30/-	Aug. 1, 1809	312	0	0
1805	63	15/-	Apl. 16, 1805	48	0	0
1805	40	15/-	Dec. 31, 1805	30	0	0
1806	204	—	Apl. 18, 1807	389	10	7*
1808	240	30/-	July 29, 1809	360	0	0
1809	108	30/-	Aug. 14, 1810	162	0	0
1807	132	30/-	Feb. 2, 1808	198	0	0
1808	360	30/-	May 2, 1809	540	0	0
1808	794	30/-	May 2, 1809	1,191	0	0
1808	448	30/-	May 2, 1809	672	0	0
1809	154	30/-	Feb. 28, 1811	231	0	0
1806	256	—	Sept. 18, 1806	507	0	0*
1808	116	30/-	July 14, 1809	174	0	0
1809	128	30/-	July 14, 1809	192	0	0
	6,369			£9,618	3	5

* Half the sum expended by claimant.

CHAPTER XIX.

Ulster Brown-Linen Markets, 1820

The following statements of the brown-linen markets in Ulster in 1820 give the actual number of pieces stamped by the seal-masters, the average price per yard, total value for the year, and the number of weavers attending each market. It will be noted that some of the smaller markets have been discontinued—merged into larger and neighbouring ones. The schedules are taken from a report of the Secretary of the Board, published in 1821. The report was the outcome of another visit to Ulster, the main object of which was to investigate the many and very serious abuses which prevailed amongst the seal-masters in the stamping of linen piece goods. It will be noted that, not only is there a great falling off in the market returns compared with those of 1816, but the volume of trade in each market has altered considerably. County Antrim, instead of being the first, comes in a bad third. An account of the exports of plain linen, given later, will show that in 1816—viz., to 5th January, 1817—over 2,000,000 yards more were exported than in 1820, but this would not account for the deficit. The figures were based upon the actual number of pieces sealed by the market seal-master, and calculated from the income he had made that year. But independently of these amounts, quantities of linens were sold in the markets which had not been stamped by the market seal-master, and these are not accounted for. Referring to the markets of Belfast and Lisburn, the Secretary says: "The linens sold in these markets, being measured by manufacturers, weavers, and others, possessed of brown seals, without limitation of numbers, it would not be possible to make out a schedule of their respective incomes, as in the case of sole seal-masters." No account is taken of the linens sold at fairs. These considerations should be borne in mind carefully in consulting the following tables.

COUNTY CAVAN.

Markets.	Description of Linen Sold.	Pieces Sealed in 1820.	Estimated Value.		Number of Weavers.	
			Per Yard.	Total.	Slack Time.	Busy Time.
			s. d.	£ s. d.		
Cootehill	5/4 Sheetings	—	1 1½	46,777 0 0	—	—
	6/4 „	14,850	1 6	—	260	480
	4/4 Linens	8,625	0 10	8,984 7 6	—	—
Ballynaght ...	7/8 „	9,000	0 8½	16,256 5 0	80	120
Killeshandra ...	7/8 „	8,570	0 8¼	15,024 5 7	80	150
Arvagh	7/8 „	7,500	0 7½	11,953 2 6	90	180
				£98,995 0 7		

COUNTY MONAGHAN.

Markets.	Description of Linen Sold.	Pieces Sealed in 1820.	Estimated Value.		Number of Weavers.	
			Per Yard.	Total.	Slack Time.	Busy Time.
			s. d.	£ s. d.		
Monaghan ...	4/4 Linens	37,824	0 9½	38,927 4 0	400	660
Ballybay	4/4 „	30,350	1 2	46,030 16 8	200	340
Castleblayney ...	4/4 „	28,000	0 9	26,250 0 0	150	250
Clones	4/4 „	13,020	0 9¼	13,372 2 6	160	290
Glasslough ...	4/4 „	10,400	0 9	10,140 0 0	20	200
				£134,720 3 2		

COUNTY FERMANAGH.

Markets.	Description of Linen Sold.	Pieces Sealed in 1820.	Estimated Value.		Number of Weavers.	
			Per Yard.	Total.	Slack Time.	Busy Time.
			s. d.	£ s. d.		
Enniskillen ...	7/8 Linens	9,500	0 10	20,187 15 0	750	1,440
Irvinestown ...	7/8 ,,	1,800	0 10½	4,016 5 0	50	80
Maguire's-Bridge (2 fairs)	7/8 ,,	500	0 10	1,560 0 0	—	—
				£25,764 0 0		

COUNTY TYRONE.

Markets.	Description of Linen Sold.	Pieces Sealed in 1820.	Per Yard.	Total.	Slack Time.	Busy Time.
			s. d.	£ s d.		
Dungannon ...	7/8 Linens	39,610	0 9	81,295 10 0	600	1,200
		2,080	0 9			
Strabane	7/8 ,,	11,900	1 2	36,096 13 4	400	620
	3/4 ,,	2,080	0 7	4,550 0 0		
	7/8 ,,	10,400	1 2	31,546 13 4		
	3/4 ,,	2,600	0 7	5,308 6 8		
Omagh	7/8 ,,	17,852	0 11½	44,481 4 8	260	540
	3/4 ,,	4,290	0 5¼	7,038 5 7		
		Carried	forward,	£210,316 13 7		

COUNTY TYRONE—Continued.

Markets.	Description of Linen Sold.	Pieces Sealed in 1820.	Estimated Value.		Number of Weavers.	
			Per Yard.	Total.	Slack Time	Busy Time.
				£ s. d.		
		Brought	forward,	210,316 13 7		
COOKSTOWN ...	7/8 Linens	21,206	0 9½	43,509 2 7	240	420
	3/4 ,,					
STEWARTSTOWN ...	7/8 ,,	9,433	0 10¾	21,918 5 3½	130	250
	3/4 ,,	3,367	0 6¾	4,912 8 6		
NEWTOWNSTEWART	7/8 ,,	2,360	1 1	26,364 0 0	130	240
	3/4 ,,	1,040	0 6	1,950 0 0		
	7/8 ,,		1 1	3,210 0 0		
	3/4 ,,	1,700	0 6	855 0 0		
FINTONA	7/8 ,,	7,800	0 10½	17,745 0 0	320	500
	7/8 ,,	7,000	0 10½	15,925 0 0		
BALLYGAWLEY ...	7/8 ,,	3,043	0 10	6,466 7 6	80	100
AUGHNACLOY ...	7/8 ,,	1,310	0 9½	2,604 19 7	40	60
	7/8 ,,	1,000	0 9½	2,012 15 0		
FIVEMILETOWN ...	7/8 ,,	420	0 9½	875 0 0	20	30
CALEDON	4/4 ,,	5,442	0 8	4,897 16 0	50	300
				£363,562 8 0½		

COUNTY DONEGAL.

Markets.	Description of Linen Sold.	Pieces Sealed in 1820.	Estimated Value.		Number of Weavers.	
			Per Yard.	Total.	Slack Time.	Busy Time.
			s. d.	£ s. d.		
LETTERKENNY ...	4/4 Linens	416	1 6	1,622 8 0	40	70
	7/8 ,,	1,560	1 3	5,070 0 0		
	3/4 ,,	900	0 7½	196 17 6		
RATHMELTON ...	4/4 ,,	400	1 5½	16,966 16 8	60	140
	7/8 ,,	4,680	1 2			
	3/4 ,,	600	0 7½			
STRANORLAR ...	7/8 ,,	1,289	1 2	3,909 19 4	30	40
	3/4 ,,	519	0 6	778 10 0		
BALLYBOFEY ...	3/4 ,,	10	1 1	1,769 9 0	20	30
	7/8 ,,	613				
BALLYSHANNON ...	7/8 ,,	712	1 1	1,966 18 0	50	70
	3/4 ,,	35	4d. to 7d.	37 13 9		
				£32,318 12 3		

COUNTY LONDONDERRY.

Markets.	Description of Linen Sold.	Pieces Sealed in 1820.	Estimated Value.		Number of Weavers.	
			Per Yard.	Total.	Slack Time.	Busy Time.
			s. d.	£ s. d.		
DERRY	7/8 Linens	18,486	1 4	64,084 16 0	250	450
	3/4 ,,	6,349	0 7½	13,491 12 6		
	7/8 ,,	4,000	Donegal goods	13,866 13 4		
	3/4 ,,	1,500		3,187 10 0		
LIMAVADY	7/8 ,,	560	1 7	2,305 6 8	50	90
DUNGIVEN	7/8 ,,	520	1 0	1,352 0 0	10	10
COLERAINE ...	7/8 ,,	13,000	1 2	41,184 8 8	200	370
	3/4 ,,	2,694	0 3			
MONEYMORE ...	7/8 ,,	5,530	1 0	19,170 13 4	600	1,150
	3/4 ,,	5,530	0 4			
MAGHERAFELT ...	7/8 ,,	5,490	1 0	19,032 17 4	600	1,100
	3/4 ,,	5,490	0 4			
KILREA	3/4 ,,	11,043	0 6	14,355 18 0	300	600
				£192,031 15 10		

COUNTY ANTRIM.

Markets.		Description of Linen Sold.	Pieces Sealed in 1820.	Estimated Value.					Number of Weavers.	
				Per Yard.		Total.			Slack Time.	Busy Time.
				s.	d.	£	s.	d.		
Ballymena	...	3/4 Linens	3,120	0	10	6,630	0	0	350	670
		4/4 ,,	3,120	1	8	6,500	0	0		
		5/4 ,,	24,960	0	8	42,432	0	0		
Ballymoney	...	7/8 ,,	1,500	2	2	8,287	10	0	150	670
		3/4 ,,	12,000	0	5	13,706	5	0		
Ballycastle	...	3/4 ,,	221	0	6	281	15	6	7	15
Randalstown	...	4/4 ,,	2,310	1	10	5,293	15	0	100	300
		3/4 ,,	840	0	6	1,071	0	0		
Portglenone	...	3/4 ,,	4,185	0	7¾	6,892	3	3	70	200
Ahoghill ...	...	7/8 ,,	3,543	1	6	13,551	19	6	130	350
Dervock ...	...	3/4 ,,	2,400	0	3½	1,785	0	0	50	150
Lisburn ...	...	4/4 fine	12,480	2	0	31,200	0	0	440	580
		White Hoggs	6,760	0	7	14,196	0	0		
		Black Hoggs	1,560	0	7	1,137	10	0		
		30" Lawns	7,800	1	6	15,210	0	0		
		26" Lawns	12,480	1	5	22,984	0	0		
Belfast ...	...	all 4/4	41,150	1	8	82,300	0	0	300	500
						£273,458	18	3		

COUNTY DOWN.

Markets.	Description of Linen Sold.	Pieces Sealed in 1820.	Estimated Value.					Number of Weavers.	
			Per Yard.		Total.			Slack Time.	Busy Time.
			s.	d.	£	s.	d.		
BANBRIDGE ...	12^{00} to 18^{00} fine 6^{00} to 8^{00} coarse	31,350	1	7½	62,660	0	0	130	350
NEWRY	12^{00} to 16^{00} fine 6^{00} to 8^{00} coarse 7^{00} narrow	47,000	1	2½	70,500	0	0	200	700
RATHFRILAND ...	12^{00} to 16^{00} fine 6^{00} to 8^{00} coarse	14,000	0	10⅞	15,750	0	0	100	170
DOWNPATRICK ...	7^{00} to 16^{00}	21,600	1	8	4,500	0	0	250	400
KILKEEL	9^{00} to 12^{00}	14,400	0	11	16,500	0	0	100	350
KIRKCUBBIN ...	15^{00} to 18^{00}	1,620	2	0	4,500	0	0	15	40
BALLYNAHINCH ...	7^{00} and 8^{00}	1,620	0	8	1,350	0	0	15	40
					£175,760	0	0		

COUNTY ARMAGH.

Markets.	Description of Linen Sold.	Pieces Sealed in 1820.	Estimated Value.		Number of Weavers.	
			Per Yard.	Total.	Slack Time.	Busy Time.
Armagh	5^{00}	78,000	0 5	£84,500 0 0	1,000	2,000
	6^{00}	78,000	0 6	101,400 0 0		
	7^{00}	26,000	0 7½	20,312 10 0		
	8^{00}	52,000	0 9	48,750 0 0		
	9^{00}	26,000	0 10½	28,437 10 4		
	10^{00}	26,000	1 0	32,500 0 0		
	11^{00}	5,200	1 2	7,583 6 8		
	12^{00}	20,800	1 4	34,666 13 4		
Lurgan	16^{00}	312	2 0	780 0 0	300	500
	30″ Lawns	20,800	1 8	45,066 13 4		
	26″ Lawns	20,800	1 6	40,560 0 0		
	26″ Diapers	15,600	0 8	36,400 0 0		
	18″ Diapers	2,080	0 6	1,560 0 0		
	88″ Diapers	2,600	4 0	15,600 0 0		
Tandragee ...	14^{00}	10,400	1 9	22,750 0 0	200	400
	13^{00}	7,800	1 6	14,625 0 0		
	12^{00}	7,800	1 5	13,812 10 0		
	8^{00}	5,200	0 9	4,875 0 0		
				£554,179 3 8		

CHAPTER XX.

All Ireland Sales, 1821

Below will be found an abstract of a general return of sale in the several linen-markets of the whole of Ireland for 1821, excluding all markets in which the value of linens sold amounted to less than £500. This account was formed from returns of each market, signed by the local Inspector, and where the number of seal-masters was limited, by them also. In going through this somewhat formidable list of markets, of which we give merely an abstract, it is found that the £500 limit is not strictly adhered to, even in Ulster. Ballycastle market sales amounted to but £206 11s. 0d. In the southern and western provinces markets are reported from Kildare, Kilkenny, Westmeath, Wexford, Tipperary, Waterford, and Roscommon. These markets were not included in Mr. Besnard's 1816 report, and the goods may have been made elsewhere and carried to these places for sale. Regarding Roscommon, one of the counties ignored by Besnard, and reported here as selling over £10,000 worth of linens, it may be stated that Roscommon and Boyle markets were responsible for a little more than half the sales, and Rusky, Tarmonbury, and Strokestown for the remainder. A note is appended to these latter three towns as follows: "These linens are made in the County Roscommon, and, being stamped there, are stated as the sales of these places, but the greater part of them is carried to the market of Longford and sold there."

It will be noted that the Ulster brown-linen market sales are less by some £250,000 than in 1816. No explanation is given for this decrease. It is possible that many of the bleachers and merchants were supplied by the manufacturers direct, without the intermediary of the brown-linen market. A goodly number of manufacturers were men of repute and standing, who employed the actual weavers. They were, themselves, responsible for the quality and measurement of the cloth they sold. When it is considered that the whole of South Antrim was supposed to be supplied by but two brown-linen markets, it seems but reasonable that a great amount of direct trade was resorted to.

The accounts, however, may be taken to show the general distribution of linen throughout the country.

Abstract of a general return of sales in the several linen markets of Ireland for the year 1821 :—

Counties.	Value. £	s.	d.
Cavan	116,626	5	5
Monaghan	142,952	12	1
Fermanagh	23,386	10	0
Tyrone	395,809	6	11
Donegal	33,076	6	11
Londonderry	231,219	12	4
Antrim	345,504	16	10
Down	214,199	3	0
Armagh	570,348	2	10
Ulster,	£2,073,122	16	4

	£	s.	d.
Meath	900	0	0
Louth	212,062	0	7
King's County	22,161	1	4
Longford	43,269	18	4
Kildare	1,125	0	0
Kilkenny	1,345	15	0
Westmeath	3,683	9	6
Wexford	807	10	0
Leinster,	£285,358	14	9

Counties.	Value. £	s.	d.
Cork	49,183	3	7
Clare	18	19	6
Limerick	5,627	1	8
Kerry	13,019	11	6
Tipperary	994	15	10
Waterford	27	1	8

Munster, £68,870 13 9

	£	s.	d.
Sligo	26,785	9	11
Mayo	71,526	13	1
Galway	8,421	16	8
Leitrim	723	13	4
Roscommon	10,207	1	0

Connaught, £117,664 14 0

Details are available of the number of linen and yarn markets in the four provinces in 1827, and from these quoted it is possible to form some opinion as to how, and in what proportions, the weaving of cloth and the spinning of yarns had spread over the country.

ULSTER.

	Linen and Yarn Markets.	Yarn Markets (only).
Armagh	4	10
Antrim	10	20
Tyrone	10	14
Monaghan	5	3
Cavan	4	16
Down	9	7
Fermanagh	4	2
Derry	7	7
Donegal	5	27
	58	106

LEINSTER.

	Linen and Yarn Markets.	Yarn Markets (only).
Carlow	–	1
Dublin	–	–
Kildare	–	–
Kilkenny	–	1
King's Co.	2	3
Longford	2	3
Westmeath	1	5
Louth	2	3
Meath	–	4
Queen's Co.	–	–
Wexford	–	4
Wicklow	–	–
	7	24

The yarn sold in Carlow, Kilkenny, and Wexford, as well as other places mentioned, was so extremely small in quantity as scarcely to deserve the name of market.

MUNSTER.

	Linen Markets (only).	Yarn Markets (only).
Cork	3	8
Clare	1	–
Limerick	1	8
Tipperary	–	1
Kerry	2	2
Waterford	–	–
	7	19

CONNAUGHT.

	Linen Markets (only).	Yarn Markets (only).
Galway	1	6
Leitrim	–	10
Roscommon	2	10
Mayo	8	10
Sligo	2	16
	13	52

CHAPTER XXI.

Exports Yarn and Linen, 1711-1821

The following is an account of plain linen cloth and linen-yarn exported from Ireland between the 25th March, 1711, the year in which the Linen Board was appointed, and the 25th March, 1781, inclusive, supplied by the Linen Board from Parliamentary documents, and, further, an account of plain linen and yarn exported from 25th March, 1781, to 5th January, 1821, the latter account having been supplied by the Dublin Custom House :—

Years ending at Lady-Day.	Linen, plain, exported.	Linen-yarn, exported.		
	Yards.	Cwt.	qr.	lbs.
1712	1,376,122	7,916	0	20
1713	1,819,816	11,802	2	17
1714	2,188,272	15,078	2	23
1715	2,153,120	13,931	0	26
1716	2,188,105	10,747	1	11
1717	2,437,265	18,052	3	20
1718	2,247,375	14,050	3	22
1719	2,359,352	15,070	1	27
1720	2,437,984	15,722	1	11
1721	2,520,701	14,696	1	22
1722	3,419,994	14,754	0	4

Years ending at Lady-Day.	Linen, plain, exported. Yards.	Linen-yarn, exported. Cwt.	qr.	lbs.
1723	4,378,545	15,672	3	17
1724	3,879,170	14,594	0	3
1725	3,864,987	13,701	1	9
1726	4,368,395	17,507	0	11
1727	4,768,889	17,287	3	1
1728	4,692,764	11,450	0	6
1729	3,927,918	11,855	3	1
1730	4,136,203	10,088	1	9
1731	3,775,830	13,746	0	6
1732	3,792,551	15,343	2	16
1733	4,777,076	13,357	2	21
1734	5,451,758	18,122	0	27
1735	6,821,439	15,900	3	20
1736	6,508,151	14,743	3	13
1737	6,138,785	14,695	2	11
1738	5,175,744	15,945	3	3
1739	5,962,316	18,200	1	16
1740	6,627,771	18,542	3	8
1741	7,207,741	21,656	3	14
1742	7,074,168	16,330	2	22
1743	6,058,041	14,169	1	10
1744	6,124,892	18,011	0	1
1745	7,171,963	22,066	1	25
1746	6,836,667	27,741	3	20
1747	9,633,884	28,910	2	20
1748	8,692,671	19,418	0	6
1749	9,504,339	21,694	0	20
1750	11,200,460	23,373	0	5
1751	12,891,318	23,743	0	20
1752	10,656,003	23,407	0	5
1753	10,411,747	23,238	0	5
1754	12,090,903	22,594	2	0
1755	13,379,733	27,948	3	7
1756	11,944,328	26,997	0	15
1757	15,508,709	31,078	3	15
1758	14,982,557	31,995	0	15

Years ending at Lady-Day.	Linen, plain, exported. Yards.	Linen-yarn, exported. Cwt.	qr.	lbs.
1759	14,093,431	27,571	0	0
1760	13,375,456	31,042	1	15
1761	12,084,881	39,699	2	25
1762	15,559,676	35,950	1	25
1763	16,013,105	34,468	0	7
1764	15,201,081	31,715	1	25
1765	14,355,205	26,127	0	0
1766	17,892,102	35,018	1	0
1767	20,148,170	30,274	3	0
1768	18,490,019	32,590	1	25
1769	17,790,705	37,037	0	20
1770	20,560,754	33,417	0	15
1771	25,376,808	34,166	0	10
1772	20,599,178	32,441	2	25
1773	18,450,700	18,078	3	25
1774	16,916,674	29,194	1	10
1775	20,205,087	30,598	3	5
1776	20,502,587	36,152	2	5
1777	19,714,638	29,698	1	10
1778	21,945,729	28,108	3	10
1779	18,836,042	35,673	0	15
1780	18,746,902	42,369	3	25
1781	14,947,265	37,202	2	0
1782	24,970,303	28,187	3	0
1783	16,039,705	35,812	3	23
1784	24,961,898	33,013	2	15
1785	26,677,647	28,842	1	5
1786	28,168,666	31,062	0	20
1787	30,728,728	31,049	2	0
1788	35,487,691	27,275	0	11
1789	29,344,633	28,742	2	0
1790	37,322,125	31,572	3	20
1791	39,718,706	26,999	2	15
1792	45,581,667	17,190	2	14
1793	43,312,057	16,644	2	3
1794	43,257,764	19,056	1	20

Years ending at Lady-Day.		Linen, plain, exported.	Linen-yarn, exported.		
		Yards.	Cwt.	qr.	lbs.
	1795	42,780,840	22,730	3	10
	1796	46,705,319	20,601	0	5
	1797	36,559,746	12,865	1	0
	1798	33,497,171	20,330	2	15
	1799	38,466,289	16,850	3	5
	1800	35,676,908	12,201	1	0
From 25th March to 5th Jany.	1801	25,041,516	11,135	1	0
Years ended 5th January.	1802	37,767,077	23,492	1	0
	1803	35,491,131	9,315	0	0
	1804	37,432,365	7,847	0	0
	1805	42,988,621	8,967	0	0
	1806	43,534,971	7,075	0	0
	1807	39,049,727	8,705	2	0
	1808	40,901,442	12,443	0	0
	1809	43,904,382	25,392	0	0
	1810	37,061,859	13,701	0	0
	1811	36,846,971	6,049	0	0
	1812	31,392,845	9,282	0	0
	1813	35,787,671	21,043	1	0
	1814	38,994,381	19,123	0	0
	1815	42,964,064	11,362	0	0
	1816	43,383,732	11,934	0	0
	1817	45,617,854	13,852	0	0
	1818	55,770,636	14,008	3	0
	1819	50,805,586	10,626	3	0
	1820	37,464,279	5,553	1	14
	1821	43,507,928	9,256	3	7

CHAPTER XXII.

Seed Imports, Flax Exports, 1782-1821

The Dublin Custom House returns supply the following account of flax-seed imported, and of hackled and rough flax exported, from March, 1781, to 5th January, 1821:—

		Flax-seed imported.	Hackled Flax exported.			Rough Flax exported.		
		H'hds.	Cwt.	qr.	lbs.	Cwt.	qr.	lbs.
Years ended 25th March.	1782	25,611		—			—	
	1783	24,617		—			—	
	1784	45,518		—			—	
	1785	34,477		—			—	
	1786	42,290		—			—	
	1787	50,512	26	0	0		—	
	1788	51,764	64	2	14		—	
	1789	51,252	14	1	7	10	1	14
	1790	42,588	3	2	21	22	1	14
	1791	41,427	102	3	14	6	0	14
	1792	51,578	1	2	2	59	3	21
	1793	59,079	38	1	14	1	3	0
	1794	37,678	25	3	7	31	3	0
	1795	46,924	10	3	14	3	3	14
	1796	25,052	331	0	0	11	2	14
	1797	42,796	1	0	0	5	0	0
	1798	36,009	5	0	7	182	2	14
	1799	40,387	7	3	14	19	0	0
	1800	64,547	12	0	21		—	

		Flax-seed imported. H'hds.	Hackled Flax exported. Cwt.	qr.	lbs.	Rough Flax exported. Cwt.	qr.	lbs.
From 25th Mar. 1800, to 5th Jan.	1801	23,925	0	1	0	4	0	0
Years ended 5th Jan.	1802	53,855	29	3	0	1,639	2	0
	1803	25,267	152	1	0	21	0	0
	1804	50,264	2,560	0	0	251	0	0
	1805	51,941	1,900	0	0	553	0	0
	1806	33,443	95	2	0	278	0	0
	1807	72,601	145	0	0	154	0	0
	1808	46,274	5,644	0	0	2,611	0	0
	1809	21,785	6	0	0	4,882	0	0
	1810	37,535	332	0	0	6,507	0	0
	1811	68,175	0	0	7	1,073	0	0
	1812	40,566	9	1	0	14,334	0	0
	1813	38,108	4	0	0	65,651	1	0
	1814	41,759	34	0	0	69,191	0	0
	1815	36,574	5	2	0	24,363	0	0
	1816	52,151	47	0	0	29,863	0	0
	1817	72,855	45	0	0	33,437	0	0
	1818	33,938	30	3	0	44,238	2	14
	1819	54,062	5	2	0	38,347	3	21
	1820	53,234	60	3	0	32,088	2	21
	1821	49,782	100	3	11	65,293	0	0

To bring this account of the Irish Linen Trade up to the end of the period of which we treat, we quote from official reports the following sums paid in the last five years for the Linen Board:—

Year ended.		Parliamentary Grant.			Appropriated Duties.			Total.		
5th Jan.	1823	£19,938	9	2¾	£427	8	10¼	£20,365	18	1
,,	1824	19,938	9	2¾	272	13	1	20,211	2	3¾
,,	1825	19,938	9	2¼	183	7	5¼	20,121	16	8
,,	1826	19,938	9	2¼	178	1	2¾	20,116	10	5½
,,	1827	19,938	9	2	—			19,938	9	2
		£99,692	6	0	£1,061	10	7¼	£100,753	16	8¼

It may be interesting at this point to show the average amount of fees received by the flax-seed inspectors in the service of the Linen Board in the three years ended 1st July, 1826, as these will give a comparative indication of the seed imported into the several ports, and, to an extent, an idea, also comparative, of the flax grown in the counties or districts nearest the ports mentioned. We see from this that Londonderry has paid the largest amount of fees, showing, up to these dates, the maintenance of her flax production.

Districts.	Fees Received.			Average.
	1824	1825	1826	
Ballina	£20 16 9	£19 10 3	£19 0 6	£19 15 10
Belfast	215 8 0	306 5 3	368 0 9	296 11 4
Dingle	—	3 1 9	2 5 0	1 15 7
Drogheda	10 10 0	9 14 0	12 1 9	10 15 3
Dublin	188 14 6	232 16 3	239 6 0	253 12 3
Galway	26 2 0	24 5 9	20 4 3	23 10 8
Limerick	31 10 9	36 15 6	54 16 3	41 0 10
Londonderry	334 1 9	373 7 3	348 16 9	352 1 11
Sligo	38 8 9	46 6 0	77 13 0	54 2 7
Westport	31 19 6	47 0 0	54 1 9	44 7 1

Detailed statistics of the acreage under flax in counties or districts not being available, the above list will be valuable, at least in so far as to give a comparative estimate of the flax sown.

CHAPTER XXIII.

The End of the Linen Board

The story of the Linen Board is nearly finished. On August 23rd, 1826, a letter from Dublin Castle, signed by Henry Goulburn, was addressed to the Board of Trustees, stating that the sum to be granted by Parliament for the year 1827 would be reduced to £10,000. The Lords Commissioners had had the matter of grants under consideration, and submitted to the Lord Lieutenant that the grant heretofore made to the linen trade was no longer necessary for the support of that branch of the industry of the country. His Excellency felt, in common with their Lordships, that there were, in principle, many objections to the continuance of such a grant, and although His Excellency considered it not advisable immediately to withdraw the whole sum heretofore granted, yet he deemed it indispensable to make a very considerable diminution without delay.

A long and very interesting letter was submitted to the Board by their Secretary, James Corry, at a meeting held on 6th February, 1827, in which he reviewed the opinion of the majority of the members of the Board who had been appointed a committee to discuss the matter: " The linen trade of Ireland could, for the future, maintain itself, throughout all its branches, without any further assistance from the revenues of the country. Many considerations concur, therefore, to justify a belief that the fate which attends all human institutions impends over this, and that the duration of the Linen Board is drawing to a close."

On August 7th, a letter was received from Dublin Castle, signed by William Lamb, asking for early attention to the matter of a letter which, by His Excellency's direction, was addressed to the Board by Mr. Goulburn on 23rd August, 1826, and further stating that it was not the intention of His Majesty's Government to propose any grant to Parliament for the encouragement of the linen-manufacture for the year 1828.

It was ordered that a copy of this letter should be sent to each member of the Board and to the principal members of the linen trade, requesting them to communicate their opinions in the fullest manner and at their earliest convenience. From the seventy-one members who then constituted the Board of Trustees, thirteen replies were received, and from the seventy-four linen merchants addressed thirty-two replies were given. A careful perusal of these letters shows the general opinion that the Board should be discontinued, but that the inspectors, seal-masters, and examiners of linens should be continued, together with their powers of enforcing or some powers of enforcing those regulations which had been so beneficial to the trade.

On September 14th, 1827, the Secretary presented copies of all the letters received by him from the members of the Board and from persons in the linen trade relative to the communication from Mr. Lamb. The Inspector General also presented reports as to whether any, and which, of the regulations contained in a recent Act of the 6th George IV., cap. 122, would be necessary and useful under the altered circumstances. It was resolved—" That legislative provisions continue to be essentially required for the protection and regulation of some branches of the linen trade of Ireland, particularly with reference to the sealing and measuring of linen cloth brought to market, and for detecting and punishing frauds in the manufacture and making up of linen cloth and yarn, and in the preparation and manner of exposing flax for sale." And it was also resolved—" That such parts of the Act of the 6th George IV., cap. 122, as relate to the objects of the foregoing resolution ought to be retained or re-enacted as law, together with such additions as may be deemed advisable for the protection of the linen trade." And it was further resolved that an establishment to secure the observance of the rules, regulations, and provisions for conducting the linen trade ought to consist of the following officers, at the salaries annexed :—

COUNTY INSPECTORS OF LINEN AND YARN.

ULSTER.

Thirteen Inspectors at a salary of £50 each	£650	0	0
Allowance of £30 each for travelling expenses	£390	0	0

LEINSTER.

Two Inspectors—Like salaries	£100	0	0
Like allowances	£60	0	0

MUNSTER.

Three Inspectors—Like salaries	£150	0	0
Like allowances	£90	0	0

CONNAUGHT.

Four Inspectors—Like salaries	£200	0	0
Like allowances	£120	0	0
	£1,760	0	0

INSPECTORS GENERAL.

Two Inspectors General at a salary of £250 each	£500	0	0
An allowance of £200 each for travelling expenses	£400	0	0
A sum of £50 each for defraying the expenses of a clerk, stationery, postages, etc.	£100	0	0
	£2,760	0	0

A draft letter was prepared by the Secretary to Mr. Lamb, founded on these resolutions and submitted to each member for consideration.

On 19th December, 1827, Mr. Corry, at the request of the Board, wrote to Mr. Lamb, saying that it would be a great satisfaction to the Board to know if His Majesty's Government had come to any determination on the subject of their letter of 14th September last, and on 1st January, 1828, a reply was received, dated the day previous, stating that such measures will be recommended to Parliament as should appear best calculated to promote the real interests of the linen trade and to economise the public expenditure.

An Act of 9 George IV. was passed, embodying in a great measure the resolutions of the Board. This Act was kept in force until 1839, when it was not renewed. A list of the names of those linen merchants, furnished to the Board by the Inspector General of each county, and whose opinions were sought relative to the discontinuance of the trust, will be interesting. Many of the names still honourably exist in connection with trade.

COUNTY ANTRIM.

John S. Ferguson - - Belfast.
John Charley - - - Belfast.
John McCance - - - Belfast.
William Chaine - - Antrim.
Robert Williamson - - Lisburn.
William Gihon - - - Ballymena.
David Cunningham - - Ballymena.
Archibald Barklie - - Larne.

COUNTY DOWN.

William Hayes - - Banbridge.
Brice, Smith & Sons - - Banbridge.
Richard Coulter - - Newry.
William Murland - - Castlewellan.
James Murland - - Castlewellan.
John Andrews - - - Comber.

COUNTY ARMAGH.

William Kirk - - - Armagh.
Jas. Mackey - - - Armagh.
Jackson Buyers - - Charlemont.
J. &. T. Uprichard - - Lurgan.
George Greer - - - Lurgan.

COUNTY TYRONE.

Jonathan Hogg - - Dungannon.
Jonathan Pike - - - Dungannon.
M. Smith - - - Willbrook.

COUNTY CAVAN.

A. Faris - - - - Killeshandra.
Jos. Benison - - - Ballyconnell.

COUNTY DERRY.

Hugh Lile – – – Derry.
Carey McClellan – – Derry
Francis Horner – – Derry.
William Dysart – – Derry.
William Mackey – – Derry.
J. A. Smith – – – Derry.
Thomas Bennett – – Derry.
Andrew Orr – – – Coleraine.
James Knox – – – Coleraine.
J. Alexander – – – Newtownlimavady.
R. Ogilby – – – Garvagh.
Leslie Ogilby & Co. – – Dungiven.
Robert McCrea – – Glencastle.

COUNTY DONEGAL.

Joseph Johnson – – Stranorlar.
James Johnson – – Stranorlar
James Watt – – – Rathmelton.
Alex. Greer – – – Rathmelton.

COUNTY MONAGHAN.

John Forbes – – – Carrickmacross.
T. & A. Davison – – Castleblaney.
Hugh Jackson – – – Ballybay.
Joseph Cunningham – – Ballybay
J. Jackson – – – Crieve, Ballybay.

COUNTY DUBLIN.

T. Crosthwait – – – Fleet Street, Dublin.
Ed. Atkinson – – – Cork Street, ,,

COUNTY MEATH AND DROGHEDA.

Francis Blundell – – Navan.
John Chadwick – – Drogheda.

KING'S COUNTY.

John Armstrong – – Clara.

COUNTY WESTMEATH.

W. Cooper – – – Clibbon, Moate.

COUNTY CORK.

C. & W. Dowden	Bandon.
J. J. Wheeler	Bandon.
J. T. Wheeler	Bandon.
Besnard & Herrick	Cork.
W. Edmonston	Cork.
Thomas Oldham	—

COUNTY LIMERICK.

James Fisher	Limerick.

COUNTY SLIGO.

Robert Barklie	Sligo.
William McDonnell	Collooney.
Andrew Kelly	Collooney.

COUNTY MAYO.

R. Patton & Co.	Westport.
R. Livingston	Westport.
John Malley	Castlebar.
F. Arbuckle	Ballina.

COUNTY GALWAY.

Charles Kelly	Ballymol.

COUNTY LEITRIM.

Berry Norris	Mohill.

This brings to an end the record of operations of the Linen Board, and for nearly all practical purposes to an end of the story of flax-wheel-spinning industry in Ireland. Up till 1825, fine counts of yarns could only be spun on wheels. The invention of wet-spinning in the year mentioned sounded the passing bell of the spinning-wheel. The year the Linen Board dissolved saw the introduction, by this system, of mechanical spinning in Ulster, and only in remote districts and for domestic purposes was the pleasant whirr of the wheel heard for yet a few years.

ENGLAND

CHAPTER XXIV.

The Misty Past

Some apology is needed for not placing England first in this work, a position which might be considered due not only because of her general premier position, but also because she was by far the largest linen-manufacturing and linen-consuming country of the United Kingdom, although in yarn production greatly behind Ireland and Scotland. When the writing of this history was undertaken the bulk of information available referred to Ireland, hence the Irish section came to be dealt with first; and as there are in that section certain parts which form a kind of preface or introduction to other portions of the work, it seems better, for the convenience of the reader, to keep it in the first position.

The beginning of the linen-manufacture of England, as of Ireland, is wrapped in obscurity. In a work entitled *Our Israelitish Origin*, by John Wilson, the following appears: " Cambri Formosa (B.C. 373), the fair oracle, was daughter of Belinus and niece of Brennus. She greatly promoted the building of cities and castles; she taught the women to sow flax and hemp, and weave it into cloth; was a priestess as well as a princess, and made the laws for the Sycambrians. Her grandfather, Dyfnwal Moel-Meod (B.C. 430), is said to have been the first King of Britain who wore a crown of gold." This is probably the first account of any manufacture of linen in England, but the fabric had, no doubt, been introduced previous to that time by the trading

Phœnicians who visited the coasts of Britain at least 900 years B.C., bringing with them eastern products in exchange for British metals. In the absence of conclusive evidence it is impossible to make any definite statement, but it is possible that, at a later period, some of the continental colonists influenced the linen trade or manufacture. It is certainly probable that linen was made in England before the Roman invasion, and the manufacture received a considerable impetus at that time, production being greatly augmented during the Anglo-Saxon period. The first note we have on the subject, by MacPherson (*Annals of Commerce*, 1805), is contained in Vol. I., page 223. "A common article of dress was a cloak or plaid (*peplum, pallium*), adorned with a variety of colours, and which was probably of home manufacture. They had fine linen, which, with other articles of sumptuous dress, may be presumed to have been imported. The bodies of the dead, at least those of eminent rank, were wrapped in fine linen. Decency of dress was recommended to all, but particularly to clergymen and their wives." The above account is of the period circa A.D. 500. Not until after the Norman Conquest do we find any further reference in MacPherson to linen. In Vol. I., page 348, under date A.D. 1189, we find: "As flax and hemp are enumerated by the Council of Westminster in the year 1175 along with corn, wine, the increase of animals, wool, cheese, and all other things annually reproduced, as subject to the payment of tithes, it appears that flax and hemp were cultivated, which could only be for the purpose of making cloth and cordage. The cultivation of them (flax and hemp) was probably introduced, or at least become so general as to attract the notice of the clergy after the Conquest, for they are not included in the list of titheable articles made out in the fourth year of William the Conqueror." From the same volume, page 402, date 1253, is taken the following: "Some appearances of manufacture of linen have already been noticed, but it is probable that they were mostly confined to the coarse fabrics, and that the quantity was trifling, the supply of the greatest quantity, and especially of the best fabrics, being procured from Flanders, where the linen-manufacture was carried to perfection with native materials of the best quality. It appears, however, that some finer linens were made in England at, or before, this time, especially in Wiltshire and Sussex; and we find orders sent by the King to the sheriffs of those two shires directing each of them to purchase 1,000 ells of fine linen, in his shire, for the royal wardrobe

(Madox's *History of the Exchequer,* c. 10, par. 12). Many other instances of linen bought for the King occur in the records, but we are ignorant whether it is foreign or home made. The manufacture of linen must have also been pretty generally established in Wales by this time, as we find soon after (in 1314) that the men of that country were mostly clothed in linen (Barbour's *Life of Robert Bruce,* p. 276, ed. 1758)."

CHAPTER XXV.

Edward III.; William and Mary

Edward III. made a bold attempt to establish the linen-trade on a better basis by introducing, in the first half of the fourteenth century, a number of textile workers from Flanders, along with their improved implements. It is possible that at this time the first spinning-wheels were introduced into England, similar to those depicted in the fourteenth-century MS. referred to in the introduction. " Improved implements " may have reference to those wheels ; Flanders certainly being, at that time, so far ahead in the linen-manufacture, would employ the most approved apparatus, and these spinning-wheels were vastly superior to the older mechanisms used. The object of the King was, however, greatly hindered by the jealousies of the English operatives and trade guilds, and no measure of success was achieved. Coarser linens still continued to be manufactured, but the finer counts were imported from abroad. In 1552 we find that a monopolizing Act was passed (5–6 Edward VI., c. 24) relating to the manufacture of felt hats, coverlets, and diaper linen, confining the manufacture of these goods to the city of Norwich and to all other corporate or market towns in the county of Norfolk. At this time Antwerp was a great centre for the manufacture of textiles of all descriptions, and when that famous city was laid waste by the Duke of Parma, in 1585, its inhabitants and its trade were scattered and the commerce of the Spanish Netherlands was destroyed. A number of the inhabitants settled in England, none of whom, except a few damask weavers, were connected with the linen-trade. All the linen-trade of the Spanish Netherlands settled in Amsterdam and Haarlem. Naturally the Protestant weavers of Antwerp would have preferred a safe anchorage in England, but for the fact that foreign merchants were obliged to pay double taxes, and were excluded from all companies or societies of commerce; and all foreign journeymen were prohibited from setting up as master workmen, or even becoming partners in any trade but such as those with which the English were unacquainted. Owing to these laws England lost a chance, which Holland gained, of establishing a flourishing linen industry. Passing from the reign of Elizabeth to that of James I. we find that, in 1622, this latter monarch formed a Special Commission to inquire into the decay of the English manufactures. Some twelve points were given to this commission to discuss, inquire into, and report upon. Two of the questions submitted for consideration were as follow:—

"Consider that whereas our Eastland (Baltic) merchants did formerly load their ships with undressed hemp and flax in great quantities, which set great numbers of our people on work in dressing the same and converting them into linen cloth, which kind of trade we understand is of late almost given over by bringing in hemp and flax ready dressed, and that for the most part by strangers. How may this be redressed?"

The second point was:—

"And as much treasure is yearly spent in linen cloth imported at dear rates, and for that, if the fishery so much desired by us be thoroughly undertaken and our shipping increased, it will require a much greater production of hemp for cordage, etc., in the fishery, which would set an infinite number of our people on work. Consider how the sowing of hemp and flax may be encouraged."

The report of the commission on these two points would be useful for this work, but unfortunately no trace of it can be discovered. The questions submitted for consideration are interesting as showing that, at the time mentioned (1622), the manufacture of linens in England, or rather the scarcity ot such manufacture, was a matter of serious consideration. In 1641 there is a record of a linen industry in Manchester, as well as that of cotton. The linen yarns woven there were procured from Ireland in great quantity. In 1643 Parliament laid a tax for the ensuing year on beer and ale, calling it by a new word, "Excise." In the same ordinance a duty was laid on other manufactures, damask table linen being one of them. In 1663 two well-intentioned statutes were made for the encouragement of the linen manufactures of England, and discouragement of the very great importation of foreign linen (15 Charles II.), but, later on, these statutes were set at nought, and encouragement was given to the importation of French wines and brandies, silks, linens, hats, etc. At the same time France was diminishing the consumption in that country of English manufacture and merchandise by new and high duties, and, at length, by prohibitions. In the year 1668 England's imports amounted to £4,196,139, and her exports to but £2,063,274, a somewhat serious state of affairs; and whilst France laid such high duties on our woollen cloths as amounted to prohibition, we were taking the bulk of our linen supply from that country (*British Merchant*, published 1713, Vol. iii., page 315). In 1669 there was an import into London of 23,680 lbs. weight of linen yarn from Scotland. This shows that some trade, at least, in coarse goods was carried on. The quotation from the *British Merchant* would probably refer to fine linen goods, for records exist of the importation into England of linens from other countries in return for our woollen manufactures of various kinds. England, as well as Ireland, owes a debt to the French refugees of various trades, and the linen-trade was considerably improved by their advent. The little colony of French manufacturers in England could do little at the time to stay the torrent of French importation. The Edict of Nantes was revoked in 1685, and the next three years'

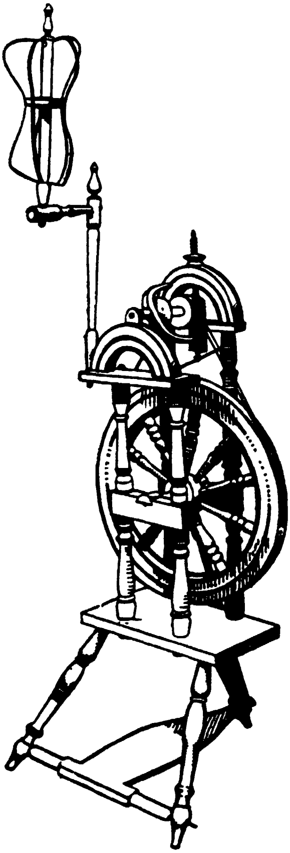


FIG. 14.
ENGLISH SPINNING-WHEEL.

returns of French imports into England show a yearly average as below:—

Linens to the value of ...	£700,000
Lustrings and Alamodes (silk)	£212,500
Other Silk Fabrics	£500,000
Paper	£50,000

These returns were taken from the Custom House books (*British Merchant*, p. 325). This state of affairs was due to one of those actions of James II., who was willing to sacrifice the commercial interests of his country for the favour of the French King, and we find that his friend, Louis of France, in return for this, prohibited the entry of most of England's woollen manufacture into France at exactly the same time. In the reign of William and Mary a considerable amount of commercial enterprise prevailed in the country, and this was fraudulently taken advantage of by stock-jobbing concerns, who promoted companies, inflated the shares, sold out, and left the companies in ruin. The linen-trade, and the desire felt for expanding it, did not escape their notice. Many people joined from patriotic motives, others from money-making motives, and a corporation was inaugurated which, under just conditions, should have been successful. Spinners, weavers, bleachers, etc., were set to work. Some Dutchmen were brought over to superintend, and the manufacturing of linen cloth was brought to great perfection. The ramifications extended even further than this, for in the north of England vast quantities of flax were sown and the seed crushed for oil. Besides supplying the home markets with this product, oil was exported. The enterprise promised fair success, when the stock-jobbers sold out on an absurdly fictitious basis, and the undertaking crumbled into nothing. It was then that the English people decided to make a present of their trade to Ireland.

CHAPTER XXVI.

Eighteenth-Century Production

At this time Ireland's total export of linens was not large, and was confined chiefly to the northern part of the kingdom. Her staple trade was wool, and had been from the time of Edward III., and, although not of great proportions, was large enough to swell still further the great English woollen manufacture, computed at this time to be value for £8,000,000 sterling yearly, of which about one-half was exported (MacPherson's *Annals of Commerce*). In return, then, for what was to her valueless, England took the whole of Ireland's export woollen trade, except that of friezes, and prohibited the export of wool except to England. Accompanying the gift of the linen-trade, which gift also included the hempen trade, were many protestations and assurances that every encouragement would be given. The wars on the continent of Europe had made the growth of wool precarious; friends and foes alike consumed the sheep, and thus linen became the staple. These countries being immune from war at home, the woollen trade had opportunity for every expansion, being freed so largely from foreign competition. The linen-trade, on the other hand, naturally developed abroad. In face of such opposition we have seen what Ireland did to build up a large linen business, which England up till then had never been capable of doing. The encouragement given by England to Ireland consisted in her allowing Irish linens to enter free of duty, while duties were laid upon foreign linens.

Up till 1743 no legislative measures were taken by England to encourage the linen-trade at home; nevertheless it expanded considerably on natural lines. England's trade, except her export trade, was not publicly known; most of the linen was made by private families for their own use, or made and consumed in the towns and villages, and any sent to London went by land, and no official account was taken of it. On the other hand, all the linens made in Scotland or Ireland, and sent to London or other English ports, went by sea, and had to be publicly entered in the case of Ireland, and for Scotland a coast docket had to be procured—that is, a document given by Custom House officers to merchant vessels to show that the merchandise had been properly entered—so that for both these countries the English Customs authorities in any port had full return of the linens landed there. To give an idea of the early expansion of the trade in England, as compared with Scotland and Ireland, we subjoin an ingenious calculation embodied in *A Letter from a Merchant to a Member of Parliament*, published in 1738, with the writer's own observations and methods of computation: "By the following piece of political arithmetic it will appear at least highly probable that there is now a much greater quantity of linen made in England than is made either in Scotland or Ireland. For this purpose I shall suppose first that there are eight millions of people in England, two millions in Scotland, two millions in Ireland, and near two millions in the Plantations, slaves included. In all fourteen millions. This supposition with regard to England must appear highly probable to everyone who considers that we have at least 10,000 parishes in the kingdom, as I have been informed by those whose business it is to make some enquiry into this matter; for 8,000,000 of people in the whole is but 800 men, women, and children to each parish, upon an average, which will appear to be a very modest computation from the number of parishes and inhabitants within London and the Bills of Mortality. By these bills it appears that in London, and within the Bills of Mortality, there die yearly, at a medium, above 2,500 persons, from whence we may compute the number of inhabitants to be 750,000, Dr. Halley having shown that the thirtieth part of the inhabitants on any assigned place may be supposed to die yearly, one year with another. Now as there are in London, and within the Bills of Mortality, but 145 parishes, we must suppose there are above 5,000 men, women, and children in each parish, and consequently it must be deemed very moderate to suppose there are, upon an average, but 800 men, women, and children in each parish in England. Then, secondly, I shall suppose that for shirts, shifts, aprons, caps, gowns, waistcoats, jackets, children's frocks, servants' frocks, bed and table linen, sacking, etc., these fourteen millions of people consume yearly five ells, or six yards and a quarter, each, one with another, which cannot be an extravagant supposition, considering that at least three yards go to a woman's shift and three-and-a-half to a man's shirt, and that there are very few persons who do not consume two shirts or shifts in a year. From these suppositions we must compute that fourteen millions of people consume yearly 87,500,000 yards. To answer this consumption, it appears from the Custom House accounts, that from the year 1728 to 1734 inclusive there were, at a medium, imported yearly from abroad, including cambrics, not more than 32,000,000 yards. By the second supposition there must be made in Scotland for their home consumption, supposing no foreign linen imported, 12,500,000 yards. By the best information I can have there is imported from Scotland into England or the Plantations, 4,000,000 yards. Total made in Scotland, 16,500,000 yards. By the second supposition there must be made in Ireland for their home consumption, supposing no foreign linens imported there, 12,500,000 yards. By the Custom House accounts it will appear, I believe, that at a medium for these last seven years there have been imported into England yearly from Ireland, 5,000,000 yards. Total made in Ireland, 17,500,000 yards. Total imported from abroad, and made in Scotland and Ireland for the home consumption of England and the Plantations, 66,000,000 yards. Remains of the whole consumption, every yard of which must be made in England, 21,500,000 yards. From these suppositions it is evident, I think, to a demonstration that there is a greater quantity of linen manufactured in England than is manufactured either in Scotland or Ireland, yet it has been insinuated that there is little or no linen made in England."

This latter sentence agrees with what seems to be a general impression; England's linen industry is not known, and therefore is considered to have had little or no existence. If we might venture to criticise the figures given above we would reduce the figures for home consumption of Ireland and Scotland considerably. Home-made wools were more in demand than linens for clothing in these countries, and, linen being always more or less a luxury, the Irish and Scotch would hardly consume as much per head as the English. We are inclined to think that England's manufacture, as early as 1728, was greater than the amount stated above, and that of Ireland and Scotland less. Besides, from Ireland's exports it will be seen that but 4,364,514 yards were exported, on an average, in the years mentioned at 25th March, and the quantity of linens stamped in Scotland during the same years ending 1st November was an average of 136,000 yards less than the stated imports into England. The figures have evidently been taken in round numbers. Linens stamped in Scotland meant all the linens exposed for sale in that country, whether for export or home consumption, but no linens made exclusively for home use required to be stamped—the law only extending to goods made for sale. If we assume, however, that all the linens stamped were sent to England, we find, with Ireland's exports added, that these two countries exported to England over three-quarters of a million yards less than stated in the computation, and that consequently England's manufacture was more by that amount. The estimate in any case is suppositional, and the mode of numbering the people a somewhat loose one, and not by any means accurate. The first census taken in Great Britain was in 1801, showing a total population in England of 8,892,536, and in Scotland 1,608,420. By reckoning the rate of increase each decade to 1861 and adopting the same rate inversely, we find England in 1731 with a population of 3,557,014 and Scotland with 769,302. The comparative relation of the two countries has also altered, giving a proportionate increase to England. These figures, too, are hypothetical, but more correctly based. No census was taken in Ireland until 1821. We have no means of checking the quantity of linen consumed by each person. The computation was made by a merchant who had long been engaged in the Dutch and Hamburg linen trade, and who, having retired from business, gave his advice and experience towards fostering and extending the trade in his native country. The linen-manufacture at this period was established in Lancashire, Yorkshire, and in the Bishopric and County of Northumberland. These were the principal seats, but smaller manufactures, as well as the domestic industry, were spread over the kingdom. We can gain some insight in the volume of, at least, part of England's linen manufacture from the quantity of yarns exported to that country from Ireland. Taking an average of 12^{oo}, 3/4 linen made from 30's warp and 45's weft, this would weigh 3,550 cwts. to the million yards. By dividing the number of hundred-weights of yarn by these figures we arrive at the number of million yards of cloth made from that yarn in England. The linen selected would be a fair average of the time, and also of the yarn numbers. The computation is based, of course, on brown linens. MacPherson (Vol. iii., p. 320) arrives at same conclusion on this subject. Writing, in 1760, of Ireland's exports, he says: "The quantity of linen yarn annually exported to Great Britain is nearly equal in value to the yarn that is woven into the exported linens." Ireland's linen exports in that year were somewhat over 13¼ million yards, and by the computation we have assumed her yarn exports were capable of being woven into about nine million yards. MacPherson gives no figures nor yet his source of information, but he is most correct in his statements. We may assume, therefore, that the calculations we have chosen rather tend to lessen than to magnify England's manufacture. In the utter absence of any English statistics, except of imports and exports, some means must be found to arrive at part, at least, of England's manufacture. We are assuming that all Ireland's yarn exports to Great Britain were woven in England. From Oddy's *European Commerce*, we have the actual quantity imported into England from Ireland for some years before the introduction of mill-spinning, and comparing this with the total exports, we find that one-thirtieth part only may have gone to Scotland. After machine-spinning times England took less yarns from Ireland, and Scotland more, though, strange to say, England's imports of yarns from foreign countries, principally Prussia and Germany, and including some from the Isle of Man, from 1776 to 1799, were nearly four times the quantity Ireland sent. Add to all this England's own yarn-spinning and it may be fairly assumed that her linen manufacture well exceeded that of the sister kingdoms combined. Foreign linens brought to English ports for re-exportation to our Plantations, or elsewhere, were allowed a draw-back of the duties imposed. This fact led to a petition, presented to the House of Commons, circa 1738, of which the following is the text: "That the manufactures of linen now labour under several discouragements, but more particularly on account of the draw-backs allowed on exportation of foreign linens, threads, and tapes, by means whereof considerable quantities have been, and still are, sent from hence to parts beyond the seas, to the great hindrance of the consumption of our own produce and manufactures," and, therefore, praying the House to give such relief as to the House shall seem meet. Many arguments were adduced for and against the withdrawal of the draw-backs. The duty withdrawn amounted to about 14 per cent., but it was contended that foreign manufactures were at a disadvantage of 13 per cent. in charges and certain fixed duties, the latter amounting to three per cent., being an old subsidy which remained with the King for ever and was not drawn back; packages, freight, commissions and insurance, and petty charges made up five per cent., and another five per cent. profit made by the importer from the exporter. It was naturally contended that the Dutch and Germans were able to produce 13 per cent. cheaper than the English, the charges paid by them giving no preference to the English manufacture. Taking off the draw-backs would serve England, but there were many reasons why such a course would be considered inadvisable. North America was being peopled largely from Scotland and Ireland; many of the immigrants there were linen manufacturers. The rich valleys of English North America were as able to produce flax as any country in Europe, and even at that time linen and cordage were made from American-grown flax and hemp, but not sufficient for home consumption. Therefore a 14 per cent. duty added to the 13 per cent. charges would induce home manufacture in America, and England would lose the carrying trade and not in any way benefit her own manufacture. In the British West India Islands—the Sugar Islands as they were called—trade had been in a poor state and the people in poverty. To raise the price of clothing there seemed a hardship, as the doing so would tax the negro for the sole benefit of English manufacture. The extra profit would also make the gains to smugglers greater, and thus induce a contraband trade. In a book published in 1731, and printed for J. Peele, the author says: "I shall take leave, in this place, to mention an affair for which, if a remedy could be found, it would be of some advantage to us. The island of St. Eustace, which is inhabited by the Dutch, is not above three leagues distant from St. Christopher, and with regard to its extent and produce, very inconsiderable; but its road is the place where Dutch interlopers from the coast of Africa seldom fail to call at. In a few days all our Leeward Islands are informed of this. In places such as our islands are, it is not much to be wondered at if there are persons who run some hazard for the hope of a considerable gain, so that all the ready money which they can advance at any rate is carried with them on board these ships, where negroes are sold to them frequently 20 per cent. cheaper than our own ships do afford them. This ready money is a great temptation to some planters, who sell their sugars to them at less than the current prices, and under pretence of sending it in sloops to our own shipping, it is sent on board these interlopers, who, by these means, get laden at less expense than our own ships, and carry off more money than a great number of our own ships, which trade for three times the value. By this it is evident that we have really employed a Dutch ship, and have paid her whole freight out and home in money, which is just so much lost to the nation. Nor is that the only damage, for on board these ships are often found great quantities of fine and coarse linens, which are sold for ready money only." This serves to show how easily foreign linens could be smuggled into our islands or run in upon the northern colonies. The Danish island of St. Thomas was also considered a menace. This was a free port and lay well in the route of the Northern Colony man to touch at, after he had got his money for his cargo at Barbadoes, or at any of the other islands; for it was contended that a man would not carry money northward if he could make above 20 per cent. by carrying linens from St. Thomas even to the most distant of our Northern Colonies, a voyage which could be performed in twenty to twenty-four days, and the risk of being seized and discovered not one per cent.

In favour of taking off the draw-backs it was reasoned that all the coarse linens sent to our Plantations were of foreign make, being sold cheaper than our own coarse linens could be at London market prices; and there being no vent for such linens in England, home manufacturers were compelled to export the tow, or coarser portions of flax, from which this negro clothing material was made. It was argued that a precedent existed in an Act of the 2nd of Anne, chap. 9, par. 12, whereby no draw-back was to be allowed upon the exportation of wares made of foreign wrought iron or steel to the Plantations in America, and by an Act of the 9th of Anne, chap. 6, par. 55, where iron was imported and afterwards exported into the Plantations, no draw-back was to be allowed for it. This was done to encourage the home manufacture of iron and steel, and it was contended that linens deserved as much encouragement. Regarding the question of throwing an additional burden upon our Plantations, especially the Sugar Islands, it was argued that no part of the distress there proceeded from the high price they paid for linens, and as the draw-backs amounted to very little more than the charges on foreign linen arriving in England for re-exportation, the extra cost would be inappreciable. Regarding the question of smuggling, it was contended that if any foreign ship put into any of our ports, harbours, bays, or creeks in America, unless forced there by stress of weather or for want of provisions, the ship and cargo were, by express statute, forfeited, and might be seized by any of His Majesty's officers or any other person in that Plantation; and if any foreign ship was found hovering upon any of our coasts in America, and should be found to have broken bulk, or to have carried on any illicit trade with the inhabitants, the ship and cargo were forfeited, and might be seized in the same manner. Even when ships were driven in by stress of weather, or want of provisions, officers were immediately put on board to take care that no contraband trade was carried on. It was also observed that a ship such as was usually employed in the West India trade, loaded with nothing but linen, would so overstock the market in any one of our Plantations, that one-half of the goods could not be sold at any price, and that before a whole ship's cargo could be landed in any bye creek it would be impossible to prevent the fact being heard all over the Plantations, especially in the small Sugar Islands, so that His Majesty's men-of-war stationed there, or the Custom House officers, could hardly ever fail of seizing the ship and perhaps most of the cargo; and if she disposed of a part at one place, and a part at another, she would run the utmost risk of being seized in hovering with broken bulk upon the coasts, or passing from one Plantation to another, and upon seizure would be condemned as lawful prize. To get rid of this difficulty it was stated that a ship sailing from France, Holland, or Denmark might take a small quantity of linen, sufficient for running into any one of our islands or Plantations as she passed by; but, on the other hand, it was not supposed that any man in his senses would run the risk of losing a rich ship and cargo, worth perhaps £3,000 to £4,000, for the sake of the small profit he could expect in running £300 to £400 worth of linen goods. So the only means left for foreign countries to effect smuggling would be to export the linens to their own settlements, and let them lie there until opportunity offered to smuggle them into some of our Plantations by means of small sloops. Even here the profit was considered not worth the risk. A linen merchant residing in France or Holland must consign his goods to a factor residing in their settlements; this factor must have his commission, and he must again sell to a wholesale linen merchant residing in the settlements, who must have his profit; this linen merchant again sells to the smuggler, who runs the goods into our Plantations from that settlement, and this smuggler must likewise have his profit. In the case of Germany the difficulty would be greater, and this country would appear to have the largest manufacture of coarse linens. These would have to be passed through Dutch, French, or Danish settlements in America in order to run them into ours, and this would always be attended with a greater charge (our duties excepted) than passing them through Britain, for the German linen merchant would have to consign his goods for this purpose to some factor residing in France, Holland, or Denmark, who must again sell them to some wholesale merchant residing in the same place, who, again, must sell them to the merchant exporting to the West Indies, where they must again go through the hands of a factor, linen merchant, and smuggler. These combined charges would amount to more than if the linens were consigned through London in the ordinary course and sold in British Plantations. The above are some of the more important arguments for and against the important question of taking off the draw-backs. Naturally manufacturers were inclined one way, and London factors and merchants were inclined the other way. Not until 1742 was anything done to meet the case. In that year bounties, about equivalent to the duties, were established to be paid on all British and Irish linens exported. In this England granted to herself equal privileges with Ireland, but the arrangement was more in England's favour. As Provost Hely Hutchinson justly remarks in his *Commercial Restraints of Ireland*, the bounties operated much more strongly in England's favour, for the expense of freight, insurance, commission, etc., in sending the linens from Ireland to England was computed at 4 per cent.; so that if British linens received 12 per cent. bounty, Irish linens received but 8 per cent.

CHAPTER XXVII.

The Bounty System

To give a comparison of the gains received by England and Ireland from the establishment of the bounties on the exportation of linens in 1743, we give below the number of yards exported abroad by both countries up till 1771; the amount of the bounties is also appended: this, of course, covers both countries. In these statistics no Scotch linens are counted.

	Yards British Linen.	Yards Irish Linen.	Bounty.
1743	52,779	40,907	£338 10 8
1744	49,521	28,255	£311 7 9
*1745	56,240	101,928	£747 17 6
1746	175,928	695,002	£4,188 10 9
1747	238,014	595,227	£4,290 12 0
1748	330,747	723,663	£5,594 1 10
1749	414,834	965,897	£8,615 1 4
1750	588,874	742,032	£8,308 16 8
1751	527,976	854,490	£8,617 8 2
1752	437,277	968,319	£8,775 13 10
1753	641,510	1,039,967	£10,058 16 5
1754	1,382,706	843,973	£13,905 7 11
1755	41,367	51,040	£577 11 0

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* This year the bounty was raised to three-halfpence a yard, extended to all linens from 5d. to 1/6 per yard.

	Yards British Linen.	Yards Irish Linen.	Bounty.
1756	394,746	719,135	£6,932 11 8
1757	1,016,754	2,005,375	£18,847 3 8
1758	1,942,667	2,171,109	£25,690 15 4
1759	1,693,087	1,956,572	£22,807 11 1
1760	1,413,602	2,352,588	£23,538 13 1
1761	1,272,985	1,819,329	£19,324 11 3
1762	1,762,643	2,930,476	£29,331 19 10
1763	2,308,310	2,588,564	£30,604 6 9
1764	2,134,733	1,858,780	£24,863 9 3
1765	2,095,933	1,663,670	£23,407 10 4
1766	2,236,086	1,770,634	£25,042 0 0
1767	2,444,181	2,227,124	£20,182 6 11
1768	2,687,457	2,270,160	£30,985 2 1
1769	3,056,950	1,885,159	£30,699 3 5
*1770	3,216,506	2,707,482	£36,972 18 4
1771	4,411,040	3,450,224	£44,738 8 10

A comparison of the above figures will show that England's foreign export of linen goods almost equalled that of Ireland during the years given. To make the view of England's linen trade more complete about this time, subjoined is a statement of the import of foreign linen goods into England, with amount of duties paid thereon, for ten years, from 1771 backwards.

	British Yards.	Duties.
1762	18,827,853	£134,031 14 1
1763	26,634,851	£185,476 19 4
1764	28,092,215	£201,711 3 7
1765	25,497,795	£182,997 0 11
1766	25,624,107	£184,657 1 2
1767	21,054,411	£164,532 8 10
1768	23,112,349	£199,467 0 10
1769	25,431,162	£217,386 9 0
1770	27,101,343	£221,333 8 9
1771	28,243,121	£230,951 14 2

The above are Custom House returns.

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* The bounty of three-halfpence was now extended to sheetings and table linens, to be computed by the square yard; and a new bounty of one half-penny a yard was allowed on British checks and stripes from 7d. to 1/6 yer yard.

To go some years further back, Mr. Paine, Governor of the Bank of England, when examined in the House of Commons on the subject of foreign linens, stated the imports from 1752 to 1756 inclusive to be an average of 31,000,000 yards annually. In this latter year the following account was laid before Parliament, showing the consumption of linens in Great Britain and the Colonies to be 80,000,000 yards :—

Of which imported from abroad	32,230,767	
But re-exported to foreign countries	2,230,767	
	30,000,000	
Imported from Ireland	12,230,767	
Manufactured in Scotland	12,000,000	
Manufactured in England	25,769,233	
		80,000,000

The total exports of Ireland up till 25th March, 1756, were somewhat less than what these figures indicate; some slight incoherency therefore occurs between the English and Irish Custom House Reports, but it may be assumed that Ireland's total export went to England; and if we add to it any reasonable amount for home consumption, we find that England's linen manufacture at this time was greatly in excess of that of Ireland. The linen stamped for sale in Scotland in the year in question amounted to but eight and a half million yards; the other three and a half million yards may therefore be taken as of home manufacture. The table facing page 234 gives account of foreign linens imported into England in eight several years from 1730 till 1754, stating the class of linen with number of yards and price per yard, and also amount of duty paid. Although the amounts are very large, they show no material increase during the 25 years—no natural increase to meet the growth of population in England. During the same period Ireland's exportation to England had increased nearly three times, and her yarn export was more than doubled, while Scotland's production of stamped linens rose from three and three-quarter millions to nearly nine million yards; so that, during this series of years, the home trade increased steadily, while the foreign imports remained practically stationary.

The hempen trade was given to Ireland along with that of linen. In 1746, the Irish Parliament granted a bounty on the exportation of sail-cloth, which stimulated that trade and that of canvas generally in a marvellous manner. In 1750, England, seeing a proportionate decrease in her own sail-cloth industry, passed an Act laying duties on this Irish manufacture equal to the bounties. The bounties then ceased and the duties were removed. At the same time England granted bounties on her own sail-cloth manufacture to foreign countries. In Hutchinson's *Commercial Restraints*, there is a footnote taken from the *Irish Commercial Journal*, Vol. xvi., p. 363, which reads as follows: "By the law of 1750, and the bounties given on the exportation of sail-cloth from Great Britain to foreign countries, Ireland has almost lost this trade; she cannot now supply herself. Great Britain has not been the gainer; the quantities of sail-cloth imported there in 1774 exceeding, according to the return of the Customs House in London, the quantities imported in the year 1750, when the restrictive law was made. It has been taken from Ireland and given to the Russians, Germans, and Dutch."

To consider again the calculation made of the probable amount of England's linen manufacture from imported yarns, we find that in the period from 1763 to 1771, England received a yearly average of 61,397 cwts. of yarn, from which would be annually manufactured about 17½ millions of yards of linen; of these yarns Ireland contributed 32,755 cwts. To get an idea of England's own yarn manufacture, we may turn to a report (quoted by Warden) of a journey made by Alexander Somerville through the counties of York, Lincoln, Cambridge, and Norfolk, in 1773, to observe the handling of flax and hemp there. The value of the quantity raised was estimated as follows:—

	Flax.	Hemp.
Yorkshire	£70,000	£10,000
Lincoln	31,800	27,000
Cambridge	8,000	2,000
Norfolk	1,000	19,000
	£110,800	£58,000
Other English Counties	£190,000	£150,000
	£300,800	£208,000

Taking the value of this flax at 10/- a stone, or £4 a cwt., the weight would amount to 75,200 cwts. Assuming that none of this was spun into tow-yarns, and making a fair allowance for waste, there would remain at least forty per cent., or some 30,000 cwts., for flax-yarns, which would account for eight and a half million yards from home-grown flax alone. These extremely moderate calculations, well within the mark, would make England's manufacture closely approach in quantity the combined exports of Ireland and the linen stamped in Scotland. A proportion of linen yarns would be woven with cotton, but the calculation is based only on the amount of pure linen the yarns were capable of producing, although cotton yarn was, at this time, superseding linen yarn for wefts. The English farmer does not appear to have had much desire in the matter of flax cultivation. In an Act of 7 George III., c. 58 (1767), a fund of £15,000 a year was established to encourage the cultivation of flax and hemp, additional duties being imposed upon foreign canvas and lawns to meet this sum. In 1770 it was enacted (MacPherson, Vol. 3, p. 498) that £8,000 of that sum should be appropriated to those purposes in England, and that no less than £7,000 a year, for the same purposes, should be put under the management of the Scotch Trustees. If the allotted funds should fall short, England should have eight-fifteenths and Scotland seven-fifteenths of the money collected (10 George III., c. 40). From a report of the commissioners for examining the public accounts, dated 18th March, 1785, it appears that no claims had been made in England for any premiums for raising hemp and flax, but that some payments had been made in Scotland on that account.

The tables facing page 236 are accounts of British and Irish linens and cottons imported into North America in 1771, and of the foreign linens and calicoes imported from Britain into North America the same year.

In 1770 an Act was passed in the British Parliament (10 George III., c. 38) extending a bounty on checked and striped linens made in Britain, and exported to Africa, America, Spain, Portugal, Gibraltar, the Island of Minorca, and the East Indies. This Act did not apply to Ireland, that country being shut out from this lucrative trade. The following table of exports from Britain and Ireland a few years later show how strongly this Act operated in favour of England.

An account of the total quantities of British and Irish linens exported from that part of Great Britain called England, showing the bounties paid on each species from 5th January, 1776, to 5th January, 1778, distinguishing each year.

From 5th Jan., 1776, to 5th Jan., 1777.

	Quantities.		Bounties.		
Plain 5d. to 6d. per yard	670	yards ...	£2	15	10
Plain 6d. to 18d. ,, ...	2,875,905	,, ...	17,974	8	1
Checked 7d. to 18d. ,, ...	1,671,928	,, ...	3,483	3	8
Diaper 6d. to 18d. per sq. yard ...	6,123	,, ...	38	5	4
Sheeting 6d. to 18d. ,, ,, ...	4,050	,, ...	25	6	3
Plain 5d. to 6d. per yard	—	,, ...	—		
Plain 6d. to 18d. ,, ...	1,324,397	,, ...	8,277	9	7
Diaper 6d. to 18d. per sq. yard ...	70	,, ...	0	8	9
Sheeting 6d. to 18d. ,, ,, ...	6,381	,, ...	39	17	7
Total	5,889,524		£29,841	15	1

From 5th Jan., 1777, to 5th Jan., 1778.

	Quantities.		Bounties.		
Plain 5d. to 6d. per yard ...	4,347	yards ...	£18	2	3
Plain 6d. to 18d. ,, ...	3,219,610	,, ...	20,122	11	3
Checked 7d. to 18d. ,, ...	1,802,402	,, ...	3,755	0	1
Diaper 6d. to 18d. per sq. yard ...	9,038	,, ...	56	9	9
Sheeting 6d. to 18d. ,, ,, ...	5,458	,, ...	34	2	3
Plain 5d. to 6d. per yard	126	,, ...	0	5	3
Plain 6d. to 18d. ,, ...	2,234,940	,, ...	13,968	7	4
Diaper 6d. to 18d. per sq. yard ...	955	,, ...	5	19	4
Sheeting 6d. to 18d. ,, ,, ...	3,818	,, ...	23	17	3
Total	7,280,694		£37,984	14	

The foregoing table shows that, independently of checked linen, of which Britain kept a monopoly, the exports for this period were nearly double that of Ireland.

The year 1773 was a time of great depression in the linen-manufacture of the United Kingdom, and even in that of the Continent. Foreign imports of linens in 1772 were 27,000,000 yards, in 1773 but 17,000,000 yards, according to statements made in the House of Commons. MacPherson, writing on this matter, says: "The decline of the manufacture and importation of linens was the necessary consequence of the disproportionately large quantities made and imported in the year 1771, when a spirit of over-trading was generally prevalent. The failures which ensued in 1772, and the glut of linens on hand of the making and import of 1771, together with the loaded state of the foreign markets from the too-great exports of 1770, 1771, and 1772, effectually abridged the powers of the manufacturers, and the demands as well as the abilities of the exporters."

CHAPTER XXVIII.

Competition of Cotton

Up to this period there is every evidence that England's linen trade was extensive when compared with that of the sister kingdoms. Lord Sheffield, writing in 1785, says: "Notwithstanding that we hear so little of the English linen-manufacture, it is said to be nearly equal to that of both Ireland and Scotland." But a greater depressing influence than over-production had now to be met. Up till the time of Arkwright's invention, when cotton yarn was woven, it was nearly always in conjunction with a linen warp. We are speaking of English manufacture, not of the flimsy cotton muslins made in India. The "Calicoes" made in England up till 1774 were really unions of linen warp and cotton weft. Pure cotton was used of certain kinds from India. This was prohibited by an Act of 11, 12, William III., c. 10. MacPherson's note on this matter is as follows: "The wear of Indian wrought silks, stuffs, and calicoes was become so universal in England at this time, and the complaints thereof so loud, that it was now thought high time to remedy so great an evil. The preamble to the statute observes that the continuance of the trade to the East Indies, in the same manner and proportions as it hath been for two years last past, must inevitably be to the great detriment of the kingdom, by exhausting the treasure thereof, melting down the coin and taking away the labour of the people, whereby very many of the manufacturers of this nation are become excessively burdensome and chargeable to their respective parishes, and others are thereby compelled to seek for employment in foreign parts. This grievance was greatly heightened by the double importations of two East India Companies, which raised a great clamour in Spitalfields, Norwich, Canterbury, Coventry, etc., whereby also a double quantity of silver was exported to India. A statute was therefore passed for more effectually employing the poor, by encouraging the manufactures of this kingdom, enacting that from Michaelmas, 1701, all wrought silks, Bengals, and stuffs mixed with silk or herba, of the manufacture of Persia, China, or East India, and also all calicoes, printed, painted, dyed, or stained there, should be locked up in warehouses appointed by the Commissioners of the Customs, till re-exported, so that none of the said goods should be worn or used, in either apparel or furniture, in England, on forfeiture thereof and also £200 penalty on the person having or selling any of them."

These prohibitions were again renewed in 1721 (7 George I., c. 7). In 1774 an Act was passed regarding a new manufacture made entirely of cotton, spun in England, and "whereas some doubts were ascertained whether it was lawful to use it, it was declared by Parliament to be not only a lawful, but a laudable manufacture, and therefore permitted to be used on paying three pence per square yard when printed, painted, or stained with colours" (14 George III., c. 72). And now began in England the fierce competition of cotton. Before the introduction of cotton machinery, all cotton wefts manufactured in England were spun on the simple one-thread wheel, the wheel of India set upon legs, and as illustrated in the illuminations of the 14th century manuscript mentioned in the introduction. Baines, in his *History of the Cotton Manufacture*, describes the method of spinning as follows: "The yarn was spun by two processes, called roving and spinning. In the first, the spinner took the short fleecy rolls in which cotton was stripped off the hand cards, applied them successively to the spindle, and whilst with one hand she turned the wheel, and thus made the spindle revolve, with the other she drew out the cardings, which, receiving a slight twist from the spindle, were made into thick threads called rovings, and wound upon the spindle so as to form cops. In the second process the roving was spun into yarn; the operation was similar, but the thread was drawn out finer, and received more twist. It will be seen that this instrument only admitted of one thread being spun at a time by one pair of hands, and the slowness of the operation, and consequent expensiveness of the yarn, formed a great obstacle to the establishment of a new manufacture." Thousands of such wheels were employed in the Lancashire districts, chiefly about Manchester and Bolton, and yet the demand for cloth became so great that the weaver's own family could not supply him with yarn sufficient, and he was obliged to collect it from neighbouring spinsters at their own prices. Dr. Aikin, in his *History of Manchester*, says: "The weavers, in a scarcity of spinning, have sometimes been paid less for the weft than they paid the spinner, but durst not complain, much less abate the spinner, lest their looms should be unemployed." Even female vanity had to be ministered to. Mr. Guest, in his *History of the Cotton Manufacture*, states that "It was no uncommon thing for a weaver to walk three or four miles in a morning, and call on five or six spinners, before he could collect weft to serve him for the remainder of the day; and when he wished to weave a piece in a shorter time than usual, a new ribbon or a gown was necessary to quicken the exertions of the spinner." With such a state of affairs no expansion of the cotton trade was possible, so invention was born of dire necessity. It is not our intention to enter into any lengthened account of the introduction of cotton machinery, but some detail is necessary to lead up to the beginning of flax-spinning machinery, and its early development, which brought with it the decay and eventually the death of the spinning-wheel.

The ancient manufactures of wool and linen paved the way for that of cotton. This latter fibre, according to Baines, had long been in use in England for the manufacture of candle-wicks and other minor purposes, but no mention is found of the cotton manufacture earlier than the year 1641, when it had become well established at Manchester. Its introduction is thought was due to the Flemish workmen who fled to England from the Spanish Netherlands after the destruction of Antwerp, in 1585. The manufacture of cotton not being known in England, the foreign workmen would be under no restrictions in pursuing that trade. For over a hundred years the cotton yarns continued to be spun on the wheel of the Indian type. In 1764, James Hargreaves, a weaver residing at Sandhill, near Blackburn, brought out his multiple spindle machine, or spinning Jenny, in which the spindles were placed upright. This position of the spindles, it is said, was suggested to him by observing an ordinary wheel, after it was accidentally upset, with its spindle upright, continuing to revolve. This led him to revolve eight spindles by means of one band. To imitate the delicate drawing of the fibres between the index finger and thumb of the operator, he contrived a *movable frame forming* a clasp which held the rovings, and while it receded from the spindles drew out the fibres to the required tenuity, the revolving spindles twisting them into yarn. The clasp was then released and permitted to approach the spindles on which the spun yarn was wound. In 1770, Hargreaves patented this ingenious mechanism, but owing to this lateness in securing protection, he derived no exclusive benefit.

The patent records show a curious specification, No. 693, of the year 1754, which is an anticipation of Hargreaves' idea. This patent was taken out by James Taylor, of Ashton-under-Lyne, in the County Palatine of Lancaster, clockmaker. Unfortunately, no drawings are attached. The claim states this invention to be "An engine to be worked either by men, horses, wind, or water, for spinning of cotton-wool into yarn, which will spin more and better cotton-yarn than any ever before made use of, and make truer, evener, and softer yarn than any common hand can spin, and lays the harle or staple of the wool more straight and close than any yarn yet produced." In this machine a number of spindles were employed which stood "upright horizontally" and revolved through a drum by means of a cord. On these actual spinning-spindles the roving bobbins were placed. By means of a crank motion, the roving was drawn, and when spun, the yarn was wound immediately on a statutable reel. The following is the entire specification: "This engine, to be worked by one or more men, horse, wind, or water, by turning an upright shaft, on which is fixed a drum or barrel that works a slip and rope string which turns the spindles, which spindles stand upright horizontally in a parallel line, on which spindles are fixed the bobbins, on which bobbins the cotton slubbing or roving is wound on. Then the said slubbing or roving is spun from the spindle point to the barrel, short reel or long reel, as occasion is required, which is fixed two feet square from the spindle point; which barrels or reels are moved by tooth and pinion of an equal number, the latter on a shaft which on the other end has a nut, of eight teeth or more, that turns a wheel of thirty-two, on the centre of that wheel is fixed a crank that moves a rack up and down by a treadle, which rack moves a nut of twelve or more or less as required, which nut is on the same axis of the barrel or reel. On the same is fixed two ratchet wheels, the one ratchet wheel to keep the barrel or reel from coming back, and the other to give the crank its regular movement. The crank causeth a thread to be drawn two foot or more or less as required. When the thread is drawn to the aforesaid length it twisteth it to a proper hardness till the crank is down again. In going up again it draws another thread, and thus each and every thread is drawn. All the aforesaid work is fixed in a wooden frame." Presumably in the above arrangement the spindles would cease when the spun yarn was being wound on the reel. No further notice seems to be taken of this frame, which either did not fulfil its requirements, or was destroyed by the "Down-with-Machinery" rioters. Hargreaves' machine did suffer this latter fate, but eventually gained a solid footing. Both these inventions were adaptations of the common cotton-spinning wheel, and in the case of Hargreaves' frame only weft yarns could be spun. A frame suitable for spinning cotton warp-yarn was brought out by Richard Arkwright, in 1769, in which he used rollers for drawing the material and spun the yarn and wound it by means of the spindle, flyer, and bobbin of the flax-spinning wheel, set upright. From this evolved the early attempts at flax-spinning by machinery.

As early as 1738 (Patent No. 562) a certain Lewis Paul, of Birmingham, secured a patent for "A new invented machine or engine for the spinning of wool and cotton." The material, after carding on the usual hand cards, was afterwards joined together to form one long slubbing, or roving, or sliver, one end of which was put between a pair of rollers, which, on revolving, drew it in, in proportion to the speed. The material was then taken up by a succession of other rollers moving proportionately faster than the first, which drew the sliver or roving to any degree of fineness required. In some cases only the first pair of rollers were used; then the bobbin on which the thread was wound, moving faster, became the drawing medium. No drawing is attached to this specification.

In 1758 another specification (No. 724) was secured by the same Lewis Paul. In this the claims are substantially the same, except that only the retaining rollers are used, the spindle itself drawing the material. One of the witnesses to the first specification was John Wyatt, who, it has been asserted, was the real inventor of the roller-drawing system; but regarding this much-vexed controversy no heed need here be taken. The fact that this second patent makes no mention of the succession of drawing-rollers would make it appear that these had not proved successful in practice. In the 1738 specifications these rollers are given another motion. To use the words of the patent, they "have another rotation besides that which diminishes the thread, yarn, or worsted; viz., that they give it a small degree of twist betwixt each pair, by means of the thread itself passing through the axis and centre of that rotation." It is decidedly not clear what this "other rotation" means, nor how any degree of twist could be given to the material, in process of attenuation, when gripped tightly between two pair of rollers at close quarters. It has been suggested that Paul or Wyatt, Birmingham men, conceived the idea from the mills for rolling iron bars, these bars being passed through a succession of rollers until the required size has been arrived at. Anyhow, this system of roller-drawing appears to have been abandoned, as the specification of 1758 testifies. Here there is no roller-drawing, the method of spinning is evidently taken from the flax-wheel, and the spindle or bobbin draws the rove, the slower-moving rollers simply retaining the material. There is a sketch attached to this specification, fully lettered, but no explanatory description is given. Spindle and bobbin seem to be driven separately at different but constant speeds, the bobbin taking the lead. No scale is attached to the drawing, but some idea may be got from the bobbin. The length of reach—viz., the distance between the grip of the rollers and the spindle—is double the length of the bobbin It is, therefore, impossible to see how a short staple fibre like cotton could hold together while being drawn along this length. These methods did not succeed, and were afterwards abandoned. It was left, therefore, to Richard Arkwright to bring out a roller drawing-frame.

We may clearly dismiss the fantastic idea described in the patent of 1738; that of twenty years later was not a roller drawing-frame. Arkwright's specification of 1769 (Fig. 15) contained one pair of delivery and one pair of drawing-rollers, the principle in use to-day in all spinning-frames; the other rollers mentioned were merely carrying rollers, and had no part in the actual drawing. The following is the description in the patent specification: A—The cog wheel and shaft, which receive their motion from a horse. B—The drum or wheel, which turns C—a belt of leather, and gives motion to the whole machine. D—A lead weight which keeps F—the small drum, steady to E—the forcing wheel. G—The shaft of wood which gives motion to the wheel —H, and continues it to I—four pairs of rollers (the forms of which are drawn in the margin) which act by tooth and pinion made of brass, and steel nuts, fixed in two iron plates, K. That part of the roller

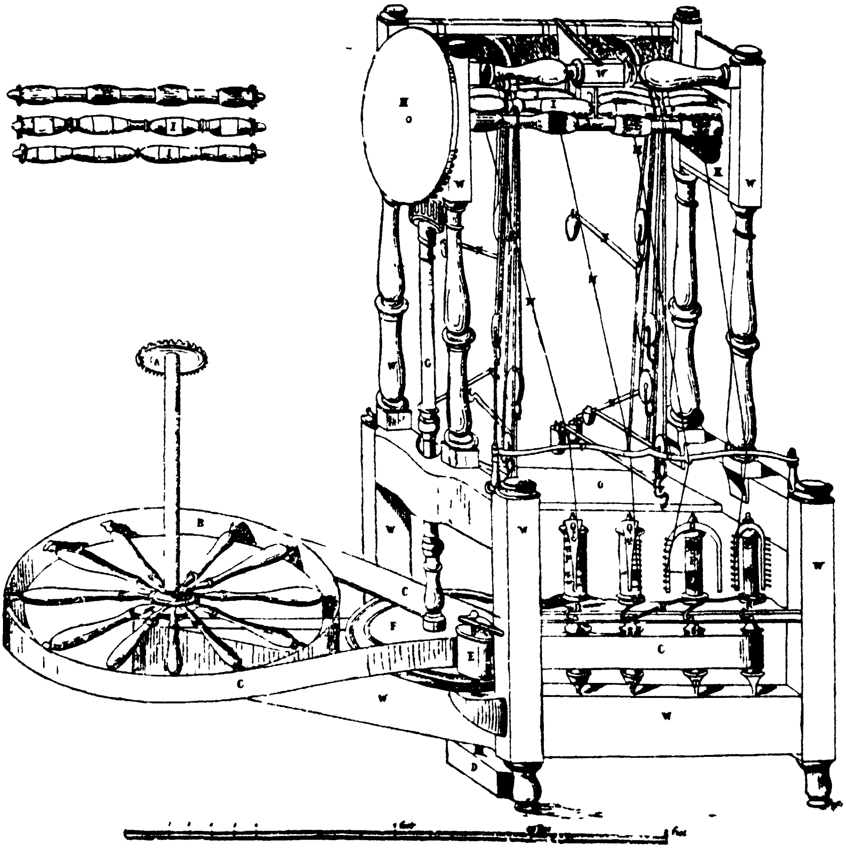


Fig. 15. Arkwright's Specification, No. 931.
3rd July, 1769.

which the cotton runs through is covered with wood, the top roller with leather, and the bottom one is fluted, which lets the cotton, etc., through it, and, by one pair of rollers moving quicker than the other, draws it finer for twisting, which is performed by the spindle T. K—The two iron plates mentioned above. L—Four large bobbins with cotton rovings, which are conducted between rollers at back. M—The four threads carried to the bobbins and spindles by four small wires fixed across the frame in the slip of wood, V. N—Iron levers with small lead weights, hanging to the roller by pulleys, which keep the rollers close to each other. O—A cross piece of wood to which the levers are fixed. P—The bobbins and spindles. Q—Flyers made of wood, with small wires on the side which lead the thread to the bobbins. R—Small worsted bands, put about the whirl of the bobbins, the screwing of which tight or easy causes the bobbins to wind up the thread faster or slower. S—The four whirls of the spindles. T—The four spindles which run in iron plates. V—Explained under letter M. W—Wooden frame of the whole machine." This ingenious and perfectly workable frame realised the intentions of the inventor.

In 1771, Arkwright was joined by Messrs. Need & Strutt, hosiery manufacturers, who saw the advantage the yarn spun from this frame would have in their own trade, that spun on the common hand wheel or on Hargreaves' Jenny being too soft for making good stockings. A site, with water power, was selected at Cromford, on the Derwent, and here a mill on Arkwright's system was erected. In 1775 Arkwright invented his carding-engine, and at the same time drawing and roving-frames on the roller-drawing system. The introduction of the flax-spinning wheel spindle, flyer, and bobbin into the cotton spinning-frame enabling warp-yarn to be spun, the use of linen yarn was gradually discarded for that purpose. It seems somewhat strange, looking back upon the events here recorded, that in the difficulty of procuring hand-spun yarns, no use was made of the flax-wheel. On it a better yarn and one capable of being woven as warps could have been spun, and at a much more rapid rate. The actual spinning and winding on the bobbin were done at the same time. In the cotton-wheel these operations were performed at different periods, and but one at a time. And when we look at Ireland, with spinning-wheels in abundance, and the use for them by no means plentiful, it seems a wonder that England did not procure her cotton-yarns, as she did those of flax, from that country, where cheapness of labour, combined with the necessary skill, were at hand. More than likely a wholesome fear prevented what seems a necessary division of labour. Ireland had made a success of the linen-manufacture, why not equally that of cotton. Arkwright, in his first and somewhat crude machines, drew out the cotton rovings so that he span them by means of the flax-spindle and flyer, and no reason seems to exist, except custom, for the non-use of the flax-wheel, which, by the way, was used also for spinning wool from cardings. Arkwright's great problem was to convey to an inanimate machine the delicate touch of the spinster. A reversal of matters could form no obstacle. The spindle, flyer, and bobbin used by Arkwright were the same as those on Crommelin's Picardy wheel, with a similar bobbin drag arrangement and driven spindle and flyer. Any flax-spinning-wheels used in England, of which we have any record, were of the Dutch and German type, in which both spindle and bobbin were driven. The old Picardy wheel was probably never seen by Arkwright, yet he arrived at its accurate motions. So far, the problem of spinning cotton by machinery had been satisfactorily solved.

CHAPTER XXIX.

Evolution of Preparing and Spinning Machinery

It remains now to be seen what was done for flax. Here a problem much more difficult of solution presented itself. In cotton, the fibre is naturally divided into its elementary parts. The drawing of these was, therefore, a matter of easy performance once the drawing methods were devised. Flax, on the other hand, although composed and built up of similar elementary fibres, is a long staple, because these long fibres are cemented together by a gummy substance. All attempts, therefore, to draw flax on cotton machinery were hopeless. A method, fortunately not attended with any amount of success, was devised by which the gummy substance was chemically destroyed and a fibre analogous to cotton produced, capable of being spun on cotton-frames. Strange to say, this process was again suggested, and even experimented with, during the time of the American Civil War, when, owing to the dearth of raw cotton, the Lancashire mills were idle. The system then suggested was that of the Chevalier Claussen. His method we copy here from the 11th edition of the *Encyclopædia Britannica* (Vol. 10, p. 486). "About the year 1851, Chevalier Claussen sought to revive a process of 'cottonizing' flax—a method of proceeding which had been suggested three-quarters of a century earlier. Claussen's process consisted in steeping flax-fibre or tow for twenty-four hours in a weak solution of caustic soda; next boiling it for about two hours in a similar solution, and then saturating it in a solution containing five per cent. of carbonate of soda, after which it was immersed in a vat containing water acidulated with half per cent. of sulphuric acid. The action of the acid on the carbonate of soda with which the fibre was impregnated caused the fibre to split up into a fine cotton-like mass, which it was intended to manufacture in the same manner as cotton. A process to turn good flax into bad cotton had, however, on the face of it, not much to recommend it to public acceptance, and Claussen's process therefore remains only as an interesting and suggestive experiment."

The earlier process was described in the Swedish Transactions for the year 1747. Sea-water, birch ashes, and quicklime were the mediums used, in which flax was boiled for ten hours. After washing and drying it could be worked and carded in the same manner as cotton.

The linen-manufacture could not attempt to keep its premier position in face of the competition of cotton; the question, indeed, was, could it exist at all? Some methods, therefore, had to be adopted in order to reduce this stubborn fibre to obedience. In 1787, the problem was attacked by John Kendrew, optic glass grinder, and Thomas Porthouse, cloth maker, both of Darlington, in the county of Durham. These names are indissolubly associated with the introduction of flax-spinning machinery. It will be noticed in the specification which follows, and the drawings attached, that great pressure was brought to bear on the flax by means of the series of retaining-rollers, and a corresponding pressure on the fluted drawing-rollers. Fig. 1 is plan of a spread-board; drawing-frames corresponding in structure were introduced between it and the spinning-frame, of which construction is indicated by Fig. 2. The specification, No. 1613, is dated 21st June, 1787.

> " The machine may be worked or used by a water-mill, horse-mill, or any other kind of mill, and is made and used as hereafter described in the two Drawings or Plans added hereto and figured 1 and 2, and severally marked.
>
> " There is a cylinder, as marked A in the Drawing Figure 1, three feet diameter and ten inches broad, made of dry wood or metal, turned true, and covered on its circumference with smooth leather, upon which are placed the rollers marked D, covered with leather and supported in their situations by the slits in the curved piece of wood marked K, in which the iron axis of the rollers turns, but suffers them to press on the wheel marked A.

There must be another piece similar to the above to support the other end of the rollers. These rollers are of different weight. The upper weight, marked D 1, is two stone, the rest decreasing to the last, which is only two pounds weight and one half. There is an iron fluted roller marked F, furnished with a toothed wheel at each end, and a wood one marked G, covered with cloth, and over it a smooth leather. There is an assisting roller, marked H, of fluted iron. These rollers are supported by their axes turning in the slit marked 2 of the piece of wood marked M, which is here separated from the end of the frame marked 8 to shew the rollers and wheelwork. The rollers marked G and F are squeezed together by means of the lever marked *p* and its weight marked *w*. The roller marked H is pressed to the mark G by its axis acting upon the inclined plane marked *x*. There is a rubbing roller covered with woollen cloth, and on its axis is a small wheel marked I, driven by the wheel marked S. This roller rests upon the roller marked G, and by its motion prevents any dirt or fibres from adhering to it. There is a cloth marked N, revolving over two rollers marked *o, o*, which has motion given to it from the wheel marked C, by means of another wheel marked P. This cloth moves at the same pace as the surface of the wheel marked A. There is a supporter, marked Y, of the axis of the wheels marked O. P, but is removed in order to shew them; it is fixed by its tenons in the mortises marked *z, z*. The roller marked B is kept in action by its endeavour to slip down the inclined plane at the top of the piece marked Y, thereby pressing against the revolving cylinder, and another piece similar to this must be understood to support the other end of the roller's axis. By the side of this revolving cloth is a table placed, of the same length and breadth as the cloth is, to which belong two smooth cloths or leathers of the same size as the table. The machine being thus prepared the attendant or workman must take a quantity of hemp, tow, flax, or wool, more or less, according to the fineness of the thread to be made, and lay or spread it evenly upon one of the smooth cloths on the table, then placed on the revolving cloth marked N, motion being communicated to the roller marked F by wheelwork, as usual, from a water, horse, or other kind of mill, which wheelwork is communicated to the wheel marked Q, on whose axis is a nut which turns the wheel marked C, and thereby the cylinder marked A moves, and with it all the rollers, by which motion the hemp, tow, flax, or wool is drawn forwards. The cloth turns down, but the hemp, tow, flax, or wool go upon the cylinder marked A, under the roller marked B, and so forward under all the rollers marked D, then falls in between the rollers marked G, F, turns under the roller marked G, and over the roller marked H, which, as it gives the rollers hold of the hemp, tow, flax, or wool in two places, enables them to drag forward the long fibres thereof, tho' many of them are to draw from under the marks 4 or 5 of the pressing rollers marked D. It then falls into a canister marked R; and as by the wheel-work the rollers marked F, G, H, move three times faster than the cloth and cylinder, the sliver must be three times longer than when presented. By the time this is drawing, the other cloth is filled with hemp, tow, flax, or wool, as before, and laid upon the revolving one, laying the hemp, tow, flax, or wool over the end of the other, which goes forward as before, and thus a continued sliver is produced as long as the machine continues its motion. But in order that this sliver may come out of the canister marked R without entanglement, it must pass through an instrument marked 5, placed over the rollers marked F, G, its open side marked T, to the cylinder at mark 4, supported by its ends marked V, V, in the slits marked W of the before-described pieces marked K. The aperture marked X is so small as to press the fibres close to each other in their passage through it previous to their passing the rollers, by which means they remain pressed side by side in the sliver and will not entangle. These thick slivers are drawn smaller by a similar process and in the same manner as used for cotton, but the machines for drawing are all of the same structure as the above, except that they have no revolving cloth. The slivers are applied to the cylinder under the roller marked B, which draws it forward under all the rollers as before described, drawing it out or lengthening it every fresh machine through which it passes, till it be small enough for the spinning machine. It must be remarked that the cylinders are made less in diameter according to the different smallness of the sliver intended to be drawn upon it. At the first, whilst the sliver is at its greatest thickness, the cylinder is required to be three feet diameter as above described; the next, rather less; and so on to the last. which is only two feet. The aperture at the bottom of the contractor belonging to each machine is also made one third part smaller than another in succession from the greatest to the smallest cylinder. as also the drawing rollers marked F, G, H, are farthest from the pressing roller marked D in the largest cylinder and nearest at the smallest cylinder. At the largest cylinder the distance is about nine inches, and the smallest about four inches; but their distance cannot in all cases be fixed, as it depends on the different length of the fibres of the hemp, tow, flax, or wool, long requiring the distances mentioned, and short ones requiring the distances much shorter than is here specified. The above several letters or marks are in the Drawing figured 1. The following several letters or marks are in the machine figured 2. The spinning-machine, as to its drawing principle, is the same as the drawing machines. The slivers are presented to it in canisters, marked A in the Drawing figured 2, and drawn over a cylinder marked B, covered with rollers marked

> D. The fibres which are to form the thread are drawn from the cylinder by the rollers marked C, the under roller of which is made of fluted iron; the other of wood covered with leather. They move six or eight times faster than the cylinder marked B are enabled to draw the hemp, tow, flax, or wool forward from under the pressing rollers marked D, by being squeezed together with the weights and crooks marked *a*, *a*, hooked to the small part of the rollers marked *c*, *c*. There is a belt of smooth cloth marked E, moving on two rollers which are turned by the wheel marked F, on the axis of the fluted roller, the opposite end of which, as at the mark G, is a nut which turns the wheel marked H, on whose axis is another nut turning the wheel marked I, and thereby the cylinder marked B with all its rollers. These rollers move in curved pieces of wood or metal marked K, which, to prevent confusion, are not represented in their places. They have slits in them in which the rollers' axes are guides, but so deep as at all times to suffer the rollers to press upon the cylinder. These rollers are covered with cloth and leather. The top roller is about ten pounds weight, decreasing to the sixth roller, which is only about one pound weight. The yarn is twined by the spindles marked L, and rubbed over the wet cloth belt if spinning linen yarn; but if spinning worsted yarn, the belt must be removed that it may not touch it as it passes to the spool, which it coils round as fast as the rollers let it out. The spindles marked L are turned by a belt from the wheel marked M, which derives its motion from the mill, and by a wheel on its axis communicates it to the roller under the mark C, by the wheel marked F, and so to the rest, as above described. The hemp, tow, flax, or wool, is turned in the same manner as cotton is by mills."

A mill on this principle was started at Darlington, but it does not seem to have been a commercial success. This was evidently not due to any fault in the mode of drawing. In a treatise on spinning-machinery by Andrew Gray, published in 1819, full descriptions, with elaborate drawings, are given of the machines then in use, the principle of drawing being substantially the same as that invented by Kendrew & Porthouse. In Gray's work is included a memorandum from Mr. Joseph Nicholson, of Bessbrook, Ireland, regarding the spinning of yarn by machinery, and dated May, 1811. The ideas of a machine spinner at the time are worth quoting in full: "The leading cause against the extension of machinery is the low price of labour; yarn spun by women is sold here much cheaper than the same article manufactured by machinery in England. In the latter country, the labouring classes have a choice of employments, in consequence of the variety of its manufactures. If one fail them, they can apply to another: with us the case is different. When trade is bad its worst effects are felt by the poor women, who must sell at the prices of the day, or remain unemployed, and it frequently happens that they dispose of the worked article for less than the raw material cost them. To one unacquainted with Ireland, the small earnings of the poorer females—frequently not more than two-pence per day, working diligently from morning till night, for months together—must appear very extraordinary; and under such circumstances, it is unlikely that this trade should increase so much as it might, though spurred on in the beginning by offers of large premiums from the Linen Board.

"With the aid of machinery, one person is fully equal to do the work of ten, and in this the advantage in its favour appears to be great; yet when it is considered that women are fully competent to bring any description of yarn which we spin to double the fineness that machinery can, this advantage is much lessened.

"Another thing against us is that we cannot with any material, let its quality be what it may, exceed the fineness of three hanks or thirty-six leas in the pound, whereas women, when the flax is good, can run it from twelve to twenty hanks, or from 144 to 240 leas in the pound.

"Our yarn, from the better quality of the raw material, is superior. It sells, therefore, considerably higher, and is commonly used as warp for yarn spun by the hand.

"On balancing the account, we believe the advantages are in favour of mill-spinning; and we are of opinion that this improvement will, one time or other, become a source of prosperity to the country.

"The wages in the factories may, on an average, be eightpence per day, and spinners could not be procured for much less; in their own houses they are satisfied with fourpence or fivepence.

"To sum up the whole, the quantity of yarn spun by machinery, the greater price given for it, and the better means of obtaining a market, are in favour of that mode with respect to coarse yarn. On the other hand, the low price of labour, the superior fineness of the wrought material, and the expense of machinery, with its wear and tear, are very great draw-backs; yet it may be estimated that the balance is in favour of the former to the amount, it is supposed, of one half-penny per hank or twelve leas."

Turning to the yarn markets of Ireland we find that this 12-lea yarn cost 6d. per hank; therefore, the saving of one half-penny, although of considerable importance, was a lesser economy than might be expected. At this period and many years before it, fortunes were being made in the Leeds flax-spinning mills, where labour was much dearer than in Ireland. One portion of Mr. Nicholson's letter will explain this, " Our yarn," he says, " from the better quality of the raw material, is superior," that is, a better quality of flax was used than that employed in hand-spinning. In Leeds, on the other hand, Russian flax was worked,* and yarns above 16's lea were not spun. This met the trade for coarse linens, and nothing beyond the reasonable capacity of the machinery was attempted. Nicholson speaks of spinning up to 36's lea. Such a yarn produced from these roller drawing-machines, with an inclination towards unevenness in the sliver, produced by what is termed " gulping"—viz., by the drawing-rollers seizing at times more than the required quantity—would hardly prove satisfactory.

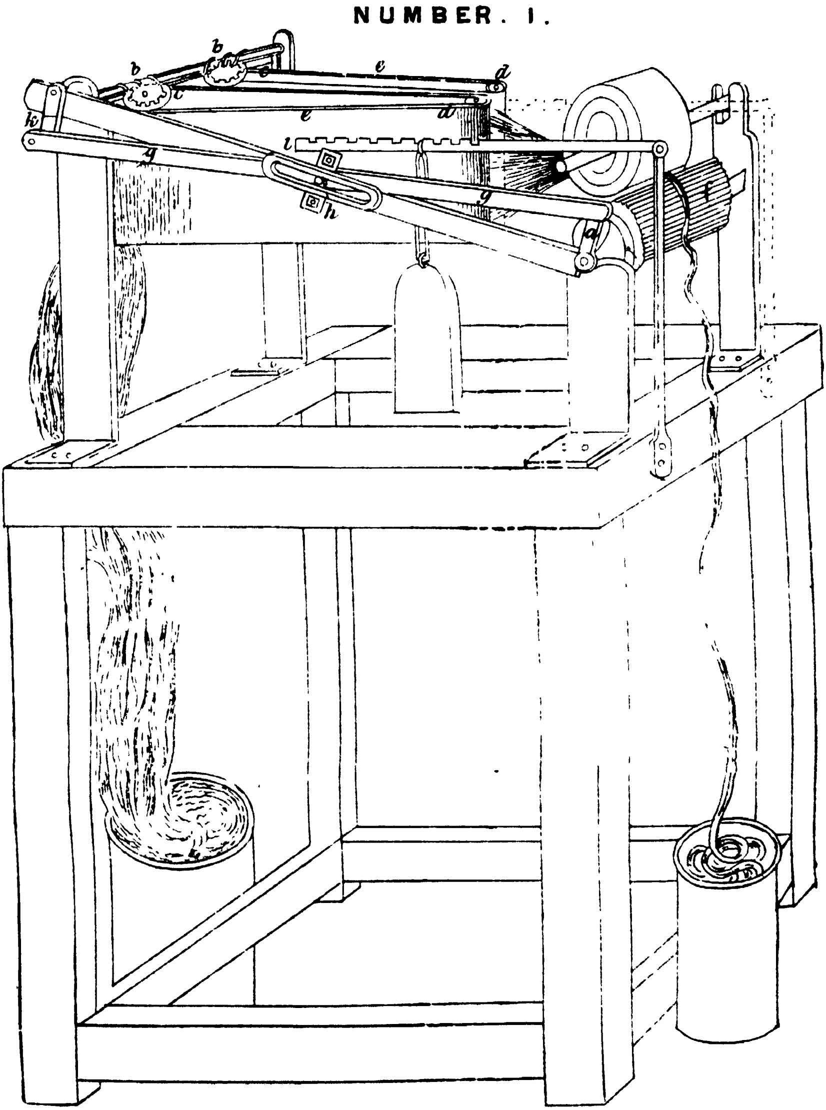
The man who led the way to commercial prosperity in flax-spinning by machinery was John Marshall, of Leeds. Writing to the *Textile Manufacturer*, in 1885, his grandson, the late Stephen Marshall, says that, in 1793, a system of flax-spinning was put together which worked to a profit, and before 1806 his grandfather had made a fortune which would not even now be considered inconsiderable by the pursuit of this industry. The late J. G. Marshall, F.G.S., of Leeds, son of the founder of the famous firm, gave an interesting sketch of the history of flax-spinning in England, especially as developed in the town of Leeds. This was read at the Leeds meeting of the British Association, in 1858, and is included in the proceedings of that body. The machinery employed was invented and patented by one Mathew Murray, specifications and drawings of which will be given later on. Mr. Murray, who was foreman mechanic to Mr. Marshall, afterwards established a machine-making works " which became the parent or precursor of many others, until Leeds became the seat of a very important branch of business in machine making, chiefly for flax-spinning."

In 1788, John Marshall, in partnership with Samuel Fenton, of Leeds, and Ralph Dearlove, of Knaresborough, made a first attempt at spinning with a small water-driven mill, called Scotland Mill, about four miles from Leeds, using Kendrew & Porthouse's machinery. In 1791 a mill was built in Holbeck, Leeds, driven, at first, by one of Savory's steam-engines, in combination with a water-wheel, and in the following year by one of Boulton & Watts' steam-engines, of 28-horse power. In 1793 there were 900 spindles running, the machinery employed being designed by Murray, whose first specification is dated 1790 (No. 1752), and is as follows :—

---

* In 1811 the price of Irish flax in County Antrim was one and a half times that of Russian flax in England.

> " Number 1 is a drawing frame, in which *a* is a crank on the axis of the front roller *f*, which, by the rod *g*, whose pivot *h* slides in the groove *i*, turns the crank *k*, and gives motion to the axis on which the worms *b*, *b*, are fixed. The same motion may be equally well communicated by two or more wheels. The worms *b*, *b*, work a small wheel on the axis of each of the rollers *c*, *c*. Round each of these rollers, and the rollers *d*, *d*, revolves a leather strap *e*, *e*, which must be something longer than the fibres of the material to be spun, and which must be of different breadths according to the quantity of materials that is to pass through them. Those for the first drawing frame are about six inches broad. The rollers *c*, *c*, and *d*, *d*, are pressed together by four springs, which are fixed on two flat bars of iron, one above and the other below, in which the pivots of the rollers *c*, *c*, and *d*, *d*, run, which are not shewn in the Plan, to prevent confusion. The rollers *d*, *d*, are wrapped round with woollen yarn or any soft substance, that they may not hold the sliver so fast but that it may draw freely from between them. The rollers *c*, *c*, and *d*, *d*, are perpendicular, and the rollers *f* are horizontal, consequently at right angles to one another. By this position the sliver is converged into a point between the rollers *f*, which must be on a level with the middle of the rollers *d*, *d*. Motion being given to the front rollers *f* (which are weighted), as usual in spinning-mills, the material to be spun is taken in a sliver made by the card comb or hackel, and being introduced between the rollers *c*, *c*, is carried forwards between the leather straps *e*, *e*, through the rollers *d*, *d*, and is drawn out by the front rollers *f* to a proper size.
>
> " The roving and spinning frames, as to their drawing principles, are made as above described, except that in the spinning frame, for greater convenience, the back rollers and leather straps are placed over the front rollers, as represented in the Drawing numbered 2 (see page 257), and standing at right angles with them. and are worked by a crank, worms and wheels, as already described in the Drawing frame No. 1. The other parts differ in nothing from the common spinning machinery.
>
> " For some materials and particular kinds of yarn the spinning



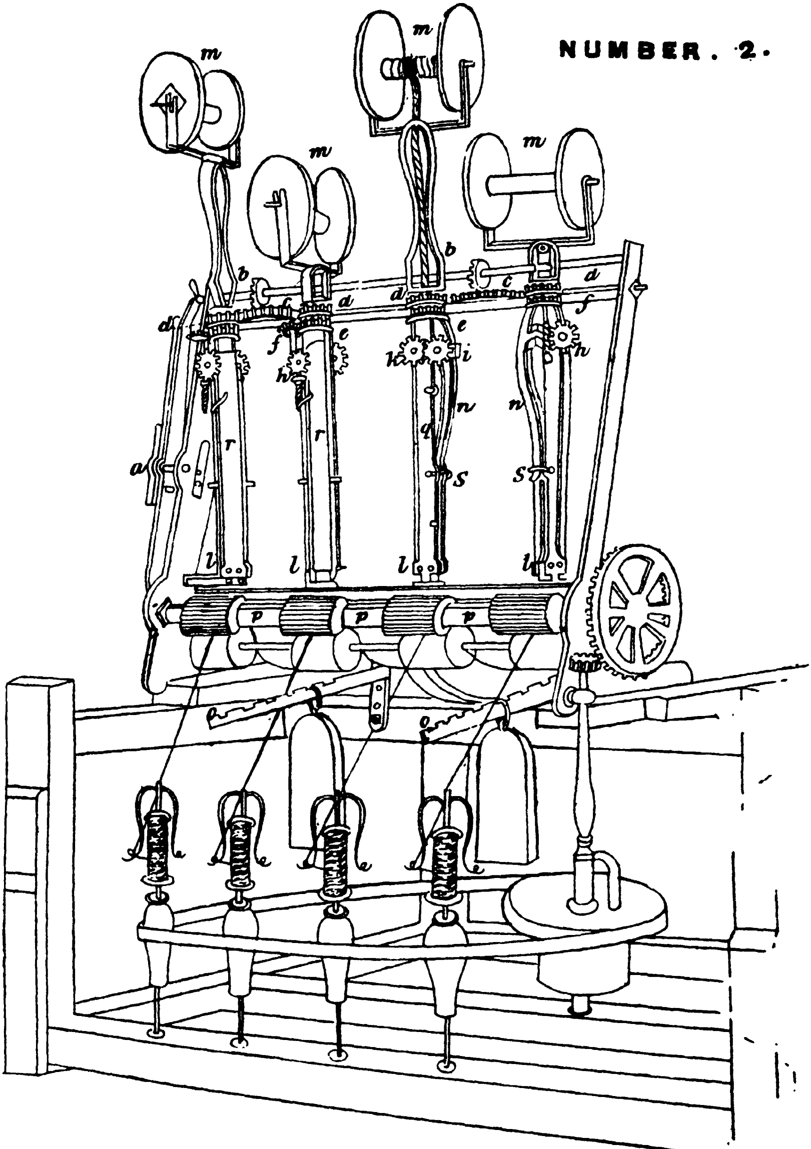
Murray's Specification, No. 1752. 1st June, 1790.
(Linen Trade of Europe, Fig. 18).

frames may be made as described in the Drawing numbered 2, in which *a* is a double crank, the same as before described in the Drawing numbered 1, which communicates the motion from the roller *p* to the small axis on which the wheels *b*, *b*, are fixed. The wheels *b*, *b*, work into small wheels (which cannot be shewn in the Plan), which are fixed on a stud to the wheels *c*, *c*. The stud wheels *c*. *c*, work into the wheels *d*, *d*, *d*, *d*, and turn round the frames *q*, *q*, in which the back-rollers are fixed. *e* is a wheel fixed to the rail *t*, within the wheel *e*; the neck of the frame *q*, *q*, turns freely round the wheel *e*; the wheel *f* turns as the frame turns round, which, by the small upright shaft and worm *h*, gives motion to a wheel on the end of a small roller. On the other end of the roller is a wheel *i*, working into another wheel of equal number on another roller *k*. Round each roller revolves a small leather strap *r*, which passes round two small rollers *l*, *l*, which are fixed at the bottom of the frame *q*, and cannot be shewn in the Plan. The roving bobbins *m* are supported by forks fixed to the neck of the frame *q* and turn round along with it. *n* is a spring which presses together the back rollers *i* and *k*, the end of it being held down by a loop *s* about the middle of the frame *q*. *o* is a weighted lever which presses together the front rollers *p*. Motion being given to the spindles and roller *p*, as usual in spinning-mills, the roving is introduced through the neck of the frame *q*, through which there is a perforation for that purpose between the back rollers *i* and *k*, and, being carried forwards between the leather straps *r* and rollers *l*, is drawn out by the roller *p* to a proper size for the intended thread and twisted into a thread by the spindle, as usual. The back rollers turning round at the same time that the sliver is drawing out, give it one twist in an inch (but may be varied by the number of cogs in the wheelwork above, according to the different materials to be spun), by which means the fibres are completely contracted, and made ready to be twisted into a thread.

"The above-described machines may be worked or used by a water-mill, horse-mill, or any other kind of mill, or by hand."

To quote again Mr. J. G. Marshall's paper to the British Association: "The system of flax-spinning had now become firmly established and well organised, and made steady progress, but as yet was only applicable to the production of the coarser description of yarns, up to No. 16 or 16 lea yarn, which was manufactured at Barnsley into the coarser description of linens. The material employed was almost entirely Baltic flax."

The following account of flax imported into Great Britain in 1814 and 1815 shows the great preponderance of foreign flax used.



Murray's Specification, No. 1752. 1st June, 1790.
(Linen Trade of Europe, Fig. 19).

An account of the quantity of flax, hackled or unhackled, imported from Foreign Countries into Great Britain in 1814 and 1815, distinguishing each year, and the quantity in British-built vessels from that imported in foreign vessels; also the amount of duty paid thereon.

FLAX IMPORTED INTO GREAT BRITAIN FROM FOREIGN COUNTRIES.

Years and Material.	In British Vessels.						In Foreign Vessels.						Total.					
	Quantity.			Duty.			Quantity.			Duty.			Quantity.			Duty.		
	Cwts.	qrs.	lbs.	£	s.	d.	Cwts.	qrs.	lbs.	£	s.	d.	Cwts.	qrs.	lbs.	£	s.	d.
Flax hackled 1814 -	1	0	17	12	7	3	7	3	6	87	2	1	8	3	23	99	9	4
Flax hackled 1815 -	0	3	10	9	0	0	- -			—			0	3	10	9	0	0
Flax rough 1814 -	326,811	0	21	6,444	10	11	172,037	1	8	5,073	6	2	498,848	2	1	11,517	17	1
Flax rough 1815 -	271,707	0	27	5,284	7	7	54,184	0	2	1,586	13	4	325,891	1	1	6,871	0	11
Total—hackled and rough 1814 -	326,812	1	10	6,456	18	2	172,045	0	14	5,160	8	3	498,857	1	24	11,617	6	5
Total—hackled and rough 1815 -	271,708	0	9	5,293	7	7	54,184	0	2	1,586	13	4	325,892	0	11	6,880	0	11

Ireland sent—	To England. Cwts.	To Scotland. Cwts.	Total.
1814	16,370	6,056	22,426
1815	22,067	7,224	29,291
		Total cwts.	51,717

A great advance took place in flax preparing, which produced a much more level and a finer yarn. This was the result of drawing the material through combs, called technically "gills." About 1820 this system came into general use, when yarns up to 40's and even 50's lea were spun with ease, and with great regularity. This system of drawing

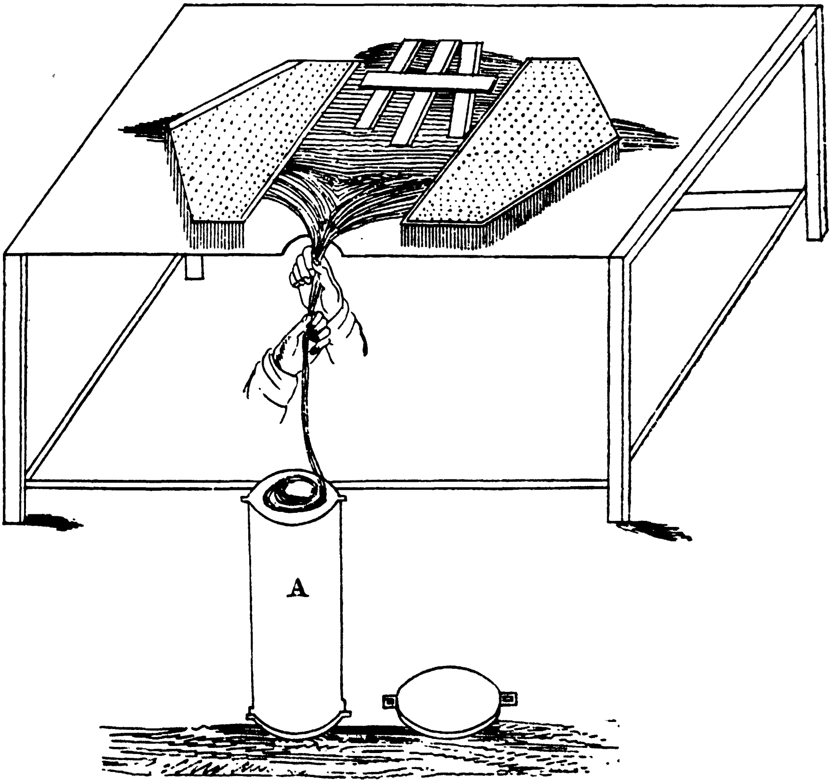


FIG. 20. SELLERS & STANDAGE'S SPECIFICATION, NO. 2034, 1795.

through gills had been patented and published in 1801, and again in 1814, so that its tardy use seems somewhat strange. The date of its introduction is given by Mr. J. G. Marshall in the British Association paper referred to. The first indication we can trace of the system of drawing through gills is contained in a specification of William Sellers and Peter Standage, of Bridgeworth, dated 1795 (No. 2034). The following description and accompanying drawing (Fig. 20) will illustrate this: One or more stricks of hackled flax were laid upon a table, a hackle with the points downwards was placed on each end of the material, the small boards laid on the middle of the flax were for the purpose of pressing lightly on it and keeping it steady. The operator then began with his hand at the edge of the strick to draw from the middle of the staple, taking a larger or smaller quantity according to the size of the yarn to be spun, pressing the sliver or drawing together through both hands and letting it fall lightly into a can, the ends of which were movable, so that when full it could be reversed, the sliver being spun from the end first drawn. An apparatus of this kind would be best described as but a conception of gill drawing—we would think that a want of continuity in a sliver to be further drawn by fluted rollers would form an obstacle to its practical use. In 1801 we have a specification, No. 2553, of Archibald Thompson, engineer, of London.

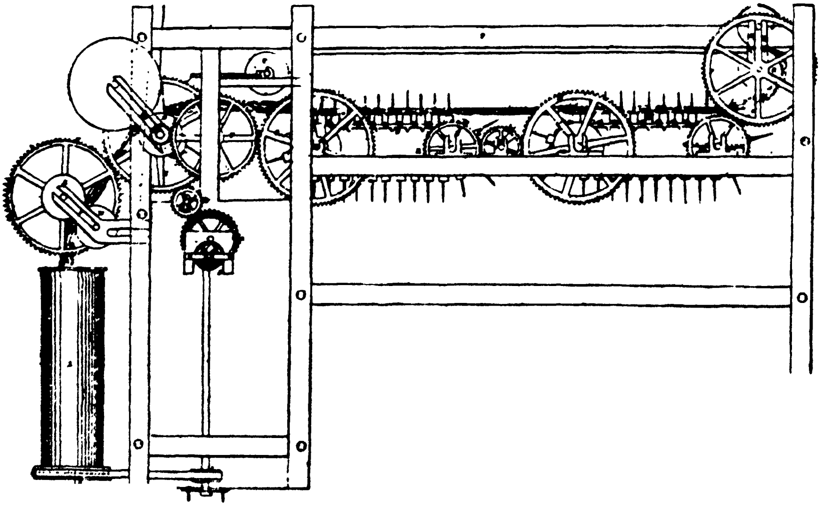


FIG. 21. THOMPSON'S SPECIFICATION, NO. 2553, 1801.

We give a copy of the drawing; any explanation is unnecessary, as it will be seen at once that it embodies the principle of chain gill drawing universally employed until 1833, when Lawson & Westley's screw gill superseded it. Archibald Thompson's frame, which was designed for preparing hemp for rope and sail-cloth yarn, has a strong resemblance to the present Good's chain-hackling and spreading-machine.

Philippe de Girard's quite analogous system of gill frames was patented in the name of Horace Hall in England in 1814 (No. 3855). Of de Girard's claim to this invention, and also to that of wet spinning, we purpose dealing in the French section. The roller drawing machinery put an end, but gradually, to the spinning of coarse yarns on the wheel. The gill drawing frames had the same effect on hand-spun medium counts, but finer yarns were, of necessity, wheel-spun until 1825, when James Kay, of Preston, introduced a system of wet spinning, which practically put an end to the spinning-wheel. The following is Kay's specification (No. 5226/1825):—

DESCRIPTION OF THE DRAWING.

"I will first describe the new machinery for the purposes of maceration. Figure 1 represents a front elevation of an ordinary flax spinning frame, as used for preparing flax, hemp, and other fibrous substances, by power, with this alteration, namely, instead of the ordinary spindles, which would be placed at M, J, substitute the twisters and rollers colored blue; but to which, being well known in the trade, I lay no claim as being any part of my said Invention. A, A, A, A, are four tin cans, set into tin or other vessels B, B, B, B, and kept from slipping to the bottom of these vessels by means of the beading or rim *r*, *r*. The can and vessel on the right are shown in section, in order more distinctly to show how the one sets into the other; the vessels B, B, B, B, are bored with holes like a cullender, and set into a trough C, C, filled with distilled or other soft water at about summer heat. As the cans A fill with rovings or slivers of flax such rovings or slivers should be pressed down by means of a plunger into the vessels B, B, B, B, until all the air in the flax be expelled through the holes in the vessels B, B, B, B; until this is effected the roving or sliver will not be sufficiently macerated. When the roving or sliver lies in one completely saturated mass at the bottom of the vessels B, B, B, B, from having been repeatedly pressed down and under the water by the plunger, the cans may be lifted off, and the roving or sliver may be divided, and the vessels and trough may be removed with the compressed rovings or slivers in them, and left to steep for about five or six hours, when they will be in a fit state to be removed to the spinning frame, and acted upon as hereinafter set forth.

" Figure 2 is a side view of Figure 1, and merely given to show the relative positions of the can, macerating vessel, and flax spinning frame.

" Having now described the new machinery for the purposes of maceration, and which consists only of the vessels marked B, and the trough of water marked C, I will proceed to describe the improved machinery for spinning flax and other similar fibrous substances.

"Figure 3 represents a side view in section of my improved spinning frame to be worked by power in any of the ordinary methods. D, D, is a wooden or other trough divided into compartments, each compartment having the contents of one of the macerating vessels emptied into it, in such manner that the said contents, when so emptied into it, may have the appearance represented in this Figure, and the best mode which I have found of doing this has been to turn the macerating vessel upside down carefully over the compartment, when the end of the roving or sliver will be easily found. E, E, represents the contents of two of the macerating vessels emptied as aforesaid. The ends of the roving or sliver being found they are led over the roller G at the top of the frame H. From this roller G the roving or sliver is led between an ordinary pair of retaining rollers *e*, *e*, and a pair of drawing rollers *c*, *c*. The drawing rollers *c*, *c*, move at a space eight times faster than the retaining rollers *e*, *e*, which retaining rollers I find answer better to be fluted. I place the drawing rollers only two and a half inches from the retaining rollers and this constitutes the principal improvement in the said spinning machinery; for the roving being so completely macerated would not hold together to be drawn out while in such a state to the ordinary length of the staple, but this very state, when drawn in so short a length as here represented, enables it to be spun very fine and evenly; for it should be stated that there is no elasticity in the fibre of flax, hemp, nettle weed, or other the like substances, but when drawn by rollers so placed as aforesaid, and moving at the relative speeds aforesaid, and in the completely saturated state aforesaid, the fibres themselves are pulled asunder, and require to be twisted immediately, or the continuity of the thread would be destroyed. This position of the rollers is not necessary in the ordinary mode of spinning such substances as aforesaid, for in the ordinary process the elongation of the skim only is effected by the process of drawing, and not the elongation of the fibres themselves which compose the skim; J is the thread or staple in its twisted or spun state, and L is the ordinary bobbin and fly.

> "Now whereas I hereby declare that what I claim as my Invention in respect of the new machinery for preparing flax, hemp, and other fibrous substances are the macerating vessels marked B, and trough of water marked C; and that which I claim as my Invention in respect of improved machinery for spinning flax, hemp, and other fibrous substances is the wooden or other trough marked D, for holding the rovings when taken from the macerating vessels, and the placing of the retaining rollers *e*, *e*, and the drawing rollers *c*, *c*, nearer to each other than they have ever before been placed, say, within two and a half inches of each other, for the purpose aforesaid."

It will be observed that the specification covers two distinct subjects, first the maceration of the sliver or rove, and second, placing the drawing rollers only two and a half inches from the retaining-rollers, this latter constituting the principal improvement in the spinning-machinery. We have already drawn attention to the fact that flax is composed of short fibres, which, combined together by a gummy substance, constitute a compound fibre of considerable length. The ultimate filaments approximate those of cotton—about two inches—while their combined length varies from eighteen inches to two feet six inches. The difficulty experienced in drawing this long fibre has been dealt with, as also the absurd idea mooted of deterging the adhesive matter, thus producing a staple weakened by the process, by splitting it into its elementary filaments as cotton is by nature. The gummy binding substance is insoluble in water, but Kay found that, by long immersion in cold water, it could be so softened that the ultimate fibres in the drawing process were enabled to slip past each other, the gum again hardening bound the fibres as before in their strength. Thus was solved a problem which made possible the spinning of flax up to practically the highest commercial numbers. This made necessary the second part of the patent; viz., bringing the retaining and drawing rollers close together, as in cotton spinning, to suit the short staple now dealt with. It was to be expected that an invention of such far-reaching importance should be made the subject of litigation. Kay was compelled to bring actions for infringement, first in the Common Law Courts, then in the Court of Chancery, and finally in the House of Lords, the ultimate result being that Kay not only lost his case, but had to pay exceedingly heavy law costs besides. It has been stated frequently that the loss of the suits, and consequent invalidity of the patent, was due to the fact that evidence and proof were given of a prior invention of wet-spinning by Philippe de Girard. This, however, is not the case. The patent laws of the time permitted distinct inventions to be included in one specification; thus Kay patented his maceration process and also the bringing of the rollers to within two and a half inches of each other. The law stated that where several distinct inventions are included in one patent, of which some only are useful or novel, the useless or old invention or inventions will invalidate the whole patent, and thus Kay lost, not owing to his maceration process, which was held to be novel, but owing to his having unfortunately included in the same specification the contraction of the reach, viz., bringing the rollers within two inches and a half of each other, a practice approaching that employed in cotton-spinning, while in flax-spinning the reach was always adaptable to the length of material used, and was adjustable, therefore, to any desired length. Had Kay even patented the maceration in combination with the shortened reach, the patent would have held. The following is an abridged report of the case:—

"In the case of Kay *v.* Marshall, it appeared that Kay had procured a patent for new and improved machinery for preparing and spinning flax, and the invention was declared in the specification to consist of new machinery for macerating flax previous to drawing and spinning it, which is called preparing it, and also for improved machinery for spinning the same after having been so prepared. If the patent had been confined to the new machinery for macerating, it was allowed that it would have been perfectly good; but, as to the second part of the invention, it appeared that the improved machinery was nothing more than the placing of certain portions of a machine well-known and in common use within two inches and a half of each other, instead of at a greater distance. It was shown that the distances between the parts in question had not been fixed in previous machines, but had been varied according to circumstances; and, further, that the reach used in cotton-spinning had actually been less than two inches and a half. It was held by the Court of Common Pleas that the adoption of a particular distance—viz., two inches and a half—in these circumstances, did not constitute such an invention as would support a patent. 'Suppose,' said Tindal, C. J., on delivering judgment, 'Suppose a patent to have been first obtained for some entirely new method, either chemical or mechanical, of reducing the fibres of flax to a short staple. We think that a second patent could not be taken out for an

improved mode of machinery in spinning flax which consisted of nothing more than spinning of short staple-flax by a spinning-machine of a reach of a given length, not less than that already in use for the spinning of cotton—the effect of which would be to prevent the first patentee from working his invention with the old machine at the proper reach. Or as Lord Cottenham put it in the House of Lords, if the plaintiff (Kay) has a right to tell the rest of the world that they shall not use the common spinning-machine with rollers at two and a half inches distance, then the existence of the patent deprives all the rest of the world of the right of using the ordinary spinning-machine in the form in which they had a right to use it before the patent was granted."

SCOTLAND

CHAPTER XXX.

Seventeenth-Century Enactments

Very little information is available regarding the early history of the linen trade in Scotland. MacPherson, writing of the year 1210, says: "Some attention was paid to the fishery and some flax was raised, and consequently some linen made in Scotland in the reign of William, as appears from the tithes of fish and flax being mentioned along with those of wool, corn, butter, cheese, animals, etc." No further mention of the industry is made by this compiler until 1669. Warden, whose *History of the Linen Trade* embraces a very valuable and exhaustive account of that trade in Scotland, has little to say of its early development. It would appear, however, that at the time of Robert Bruce, linen was extensively manufactured in Scotland for home consumption. Patrick Lindsay, who, in 1738, wrote a pamphlet entitled *Reasons for Encouraging the Linen Manufacture of Scotland*, says: "This trade was introduced and established in Scotland many ages ago, and had it been carefully cherished by the public it must have been in a flourishing state at this day; but it has been woefully neglected ever since the civil wars in the reign of King Charles I., and was thereby reduced to a very low ebb." During the Commonwealth there must have been a considerable revival and possible expansion, for after the accession of Charles II. we find it worthy of legal enactments. The first of these was an Act of Charles II., Parl. 1, Sess. 1, cap. 43, "discharging the exportation of linen yarn, and regulating the breadth of linen cloth." It reads: "His Majesty, with consent of Parliament, statutes and ordains that no linen yarn be exported, under the pain of confiscation, half to the King, and half to the attacher; that linen yarn be sold by weight, and that no reel be shorter than ten quarters, under the pain of escheat of the yarn brought to the market of a shorter reel, to be divided as said is. That all linen cloth of the price of ten shillings Scots the eln or above, be made of the breadth of an eln and two inches, under the pain of imprisonment of the weaver for fourteen days, and twenty pounds besides to the Judge Ordinary, and the escheat of the cloth to the attacher; and that linen cloth be taken up by the selvedge, and not by the ridge, and that it be bleached without lime, under the pain of twenty pounds for each fault, to be paid to the Judge Ordinary."

The £1 Scots at this time was worth one-twelfth of the value of the English £, and was accordingly worth 1/8. It was divided into twenty shillings, each worth an English penny. The above Act establishes that, in the middle of the seventeenth century, there must have been a considerable linen manufacture in Scotland, and that abuses which had crept in required an Act of the Scottish Parliament to deal with. The words of the Act show that no mere domestic industry was being considered; a long or short reel could make no difference there. The spun yarn was brought to market for sale, and the cloth when woven was also sold, probably, in part, exported. The fact that two inches must be allowed in the breadth of a brown web, for shrinkage in bleaching, could reasonably point to an export trade to Flanders or Holland, where at that time a great quantity of Scotch-woven linens were sent to be bleached and returned. Some may have been retained in those countries, and complaints from there of the shortness in breadth would more likely lead to the enactment than any home complaints, where the shortness was understood and provided for in the purchase. Another Act of Charles II., Parl. 3, cap. 12, for encouraging trade and manufactures, refers to the length of webs and the lapping of them when sold in a public market. The text of this Act is as follows:—

"His Majesty, with consent of Parliament, ratifies and approves the foresaid 43 Act of the first session of His Majesty's Parliament. Like as, it is hereby ordained, that hereafter, all linen brought to the market for public sale be made up of pieces and half-pieces, and that the piece contain twenty-four ells, and the half-piece twelve ells, and that it contain not one eln more or less, under pain of confiscation thereof, and that all the said pieces be taken up in folds, ell or three quarters long, and that none of them be rolled, that thereby the sufficiency of the whole piece may be known, and that the same be not stretched by rolling, whereby the measure will not hold out; and that under the penalty of confiscation of the linen otherwise taken up, and imprisonment, and fining of the transgressors, not exceeding the value of the linen. And 'tis hereby declared that the one half of the penalties aforesaid shall belong to the attacher, and the other half to His Majesty." In the first of the two Acts above quoted it will be noted that no linen yarn was allowed to be exported from Scotland. This provision had the effect of encouraging, in fact compelling, the weaving of linen. In the north of Ireland nearly all the linen yarn went to Manchester, and was returned woven, until the advent of these Scots, who showed the Irish the way to keep the trade at home. No doubt a great temptation existed among spinners or yarn factors to sell to England, where little yarn was spun, but where a manufacture existed. Quoting again from Lindsay's pamphlet, he states, speaking of 1726: "In this last year our weaving was likewise discouraged by a very great exportation of linen yarn to England, which raised the price of that staple of yarn (of one Spinel in the pound weight) from 23d. to 26d. per Spinel." The following quotation from Warden (p. 428) is a sign of Scotland's linen trade at the end of the reign of Charles II.:—

> "In December, 1684, while strenuous measures were taken for preventing the free importation of English woollens into Scotland, a petition came from persons interested in the linen manufacture, complaining of the usage which had lately been experienced by Scotchmen selling linens in England. Hitherto there had been a free trade for Scotch linen weavers in the South, and as from 10,000 to 12,000 persons were employed in such weaving, the results were important, not merely to the workers, but to the landlords for the payment of their rents and to the Government, as each 1,000 to 1,200 packs exported to England paid a custom of £3 sterling. Latterly, however, the men selling Scotch linen in England had been taken up and whipped as malefactors, and many were obliged to give bonds that they would discontinue the traffic. The Council recommended the Secretary of State to interpose with His Majesty, that merchants and others might have liberty to sell linen in England as formerly; never once adverting to the fact that they had an Act of Parliament conceived in the same illiberal spirit towards English woollen manufactures. Had the practice of whipping the Scotch who went to England to sell their linens not been stopped, it would have been a severe blow to the Scotch linen trade of the present

age, as manufacturers would not have liked such a castigation in their journeys to the South."

In 1695 the following Act of William and Mary, Parl. 1, cap. 29, anent the right measuring and making of linen cloth, was passed in the Scottish Parliament :—

> "Our Sovereign Lord and Lady with advice and consent of Parliament strictly prohibit and discharge all merchants and others to export from this Kingdom any lint (flax) of the native growth thereof, or any linen-yarn whatsomever, under the pain of confiscation of the same, the one half thereof for the use of the attacher and informer, and the other half to the poor of the parish. And sicklike, prohibit and discharge the selling of any linen-yarn not put up into hesps, each hesp containing twelve cuts and each cut containing six score threads ; and that no reel be made use of under the measure and length of ten quarters, under the pain of confiscation as aforesaid ; and ordain, that all linen-yarn be sold by weight, and further statute, ordain and enact that all linen-cloth made for export forth of the Kingdom, and sold in fairs and public markets, shall be made of these two standards following, viz. :—Either of the breadth of three-quarters and two inches unbleached, and three-quarters bleached, or otherwise of the breadth of an ell and two inches unbleached, or a large ell bleached ; and that no three-quarter broad cloth shall contain above one thousand double threads of warp ; and that all cloth above a thousand double threads of warp shall be an ell and two inches broad unbleached, and an ell large bleached ; and that all linen-cloth to be sold in manner aforesaid, be made up in pieces and half-pieces, as follows, to wit, all three-quarter broad cloth in pieces containing eighteen ells at least, and half-pieces containing nine ells at least ; and all ell-broad cloth in pieces containing twenty-four ells at least ; and all such linen-cloth be equally and evenly wrought, according to the due thickness and closeness of sufficient marketable cloth ; and that all weavers leave at the end of each piece and half-piece three fingers breadth of the warp-yarn unwefted, to remain for thrumbs to each piece or half-piece ; and that when they cut any web out of the loom they knit every fifty double threads together, for the more exact numbering of the warp threads of every web. And sicklike, their Majesties, with consent foresaid, statute and ordain, that the owner of all such cloth made for export as aforesaid, before it is exposed to the first sale, shall be obliged to bring the same to a Royal Burgh, where linen is in use, to be sold, and there to receive the public seal or stamp of the Burgh, bearing the Coats of Arms of the Burgh, upon both ends of ilk piece or half-piece thereof ; which shall be a sufficient proof of the just

length and breadth, the evenness of working and the due and sufficient thickness and closeness thereof. For which seal or stamp there shall be paid eight pennies Scots for ilk piece and four pennies for ilk half-piece, to the marker, keeper of the said seal, and for that effect that there be in each Royal Burgh where linen is in use to be sold an honest man, well seen in the trade of linen-cloth, appointed to keep the said seal for marking linen therewith, at the rates above mentioned, who shall be admitted to that office by the respective magistrates, upon his giving an oath *de fideli administratione*, and finding sufficient caution for that effect, and in case at any time he refuse to seal and stamp any piece or half-piece of linen-cloth of the length, breadth, evenness, thickness and closeness above mentioned, that he shall be fined therefor, at the discretion of the magistrates; and in case he shall stamp or mark any piece or half-piece of linen-cloth, which shall not be found of the length and breadth prescribed by this Act, he shall be liable for the sum of 12 lib. Scots of penalty for each whole piece and six lib. for each half-piece, by and attour the losing his freedom within the said Burgh, and in case he shall stamp or mark any piece or half-piece which shall not be found of a due and sufficient evenness and closeness, he shall be liable for the sum of three lib. Scots of penalty for each whole piece, and thirty shillings Scots for each half-piece, to be applied for the use of the informer and the poor of the parish, in manner above written. And their Majesties, with consent foresaid, strictly prohibit and discharge the bleaching of any linen-cloth whatsoever with lime, under the pain of 20 lib. Scots by and attour the confiscation of the cloth so bleached, for the uses before mentioned. And their Majesties, with consent foresaid, statute and ordain, That all linen-cloth be taken up and measured by the selvedge, and not by the ridge, certifying all such as do in the contrary, that they shall be fined at the discretion of the respective Magistrates. Likeas, their Majesties, with advice and consent foresaid, statute, ordain and enact that all linen-cloth which shall be shipped or packed for export, before the marking thereof, in manner foresaid, shall be confiscated for the uses above mentioned and in like manner 'tis hereby statute and ordained that all weaving-graith, such as hedles and reeds, which are not found of a due length and sufficiency for weaving cloth of the breadth foresaid, after the first of November next to come, shall not only be destroyed but likewise all weavers who shall have such graith, shall pay 100 lib. Scots for every loom, wherein such graith is found toties quoties, to be applied for the uses aforesaid, and for the more effectual execution of the Act, their Majesties with consent foresaid authorise and impower the inferior ordinary judges or justices of peace within their respective jurisdictions, to put this Act, and all Acts thereby ratified, to due execution, and if they fail

> these judges or justices of peace who are within the Burgh are hereby authorised and impowered to take trial thereanent and to put this Act, and other Acts thereby ratified, to execution in Landwart, outwith their Burghs and privileges thereof. And those who dwell in Landwart are in like manner authorised and impowered to take trial, and execute the same within Burgh, whereanent their several jurisdictions are hereby extended, to the effect above written allenarly, and for the encouragement of all persons who shall enter into companies or manufactories for making linen-cloth, 'tis hereby statute and ordained that all flax and linen-yarn imported for the use of such companies or manufactories, and all linen-cloth exported by them, shall be free of all custom, duties or excise for the space of...........years next after they shall enter into such companies, providing the same be entered in and set up within two years from the date of these presents."

Scotland was at this time in a state of very great, of very dire poverty, and the prohibitions regarding the exports of yarn, though well meant, must have caused increased distress amongst those who, otherwise, would have been enabled to supply a portion of England's requirements, furnished from Ireland and Germany. Countries of wealth, even in Europe, as France and Holland, although possessing large linen manufactures, were not yarn-spinning countries. They, like England, maintained the profitable weaving end at home, and got their yarns spun in those poorer countries, where wages and commodities were cheap and luxuries quite unknown. As Germany supplied Holland, so she, and also Ireland, supplied England, but Scotland was hindered by her own acts, designed naturally to encourage weaving. It unfortunately had the other effect of discouraging spinning and of bringing no amelioration to many families in great want. It is very difficult at this distance of time to form a correct idea of the wisdom or unwisdom of those who framed this law. Scotland must have benefited in the manufacture of linen—still, it must be remembered that it required four spinners to keep one fully-employed loom going, and the wages of these spinners would aggregate more than double the wages of a weaver, even adding all costs of loom preparing. Spinning was the greater wage-earning industry of the two. In 1669 the Act of Charles II. prohibiting the export of yarn from Scotland must have lapsed, to be renewed again by this Act of William and Mary, for we find in that year Scotland exported 23,680 lbs. of linen yarn to London (MacPherson, Vol. II., p. 536). This small quantity would not keep many spinners in employment. Manchester, however, was the chief seat of any linen manufacture England had at the time, the shipping port for which would be Liverpool.

The condition of the people of Scotland at the close of the seventeenth century must have been pitiable. An article in the *Scottish Review* for 1855, dealing with this matter, states: "The crops were wrecked by blasts, storms, and inhospitable conditions of the atmosphere, and the poor classes were in misery. The summers were ruined by drenching rains, and the winters by frosts and snows. Sheep and oxen perished by thousands, while the rural population were dying of want and the diseases which precede or accompany this form of suffering. Men and women fought with each other for morsels of food; men were often seen carrying corpses single-handed along the country roads to the sacred God's Acre. On the road-side dead men were to be found with morsels of unswallowed food in their mouths; dying mothers with starving infants were no less common; people were sometimes found crowding to the churchyard—to be near it when they died."

Scotland, under the Commonwealth, had enjoyed a freedom in export trade, but on the accession of Charles was passed the English Navigation Act, which ruined the whole of Scotland's foreign commerce, and contributed largely to bringing the country to a state of comparative destitution. The Acts, therefore, made by the Scottish Parliament, prohibiting the export of linen yarn, were designed to meet the loss of the colonial trade, and thus, by compelling the manufacture of her own yarns at home, prevent them being worked into cloth in England. Similar laws were passed, at the same time, allowing free import of materials used in manufacture. As will be seen by the Act of William and Mary, all flax and yarn were admitted free to all companies or manufactories making linen cloth, and all such cloth was to be exported free of customs, duties, or excise. Previous to the passing of this Act some manufactories had been encouraged and established—one for the making of linen cloth was incorporated in 1673, in Leith, and after the privileges of the Act came into force some further companies were established. The unfortunate speculation known as "The Darien Scheme," established by the Scottish Parliament in 1695, ruined these budding manufactories and spread disaster throughout Scotland, putting an end, for a time at least, to her projects of colonial trade and her ambitious scheme of a Scottish settlement in America.

CHAPTER XXXI.

Early Eighteenth-Century Encouragements

The Act of Union in 1707 gave to Scotland a co-partnership with England in commerce, and removed all the restrictions which hitherto had hindered a trade with the colonies; duties on linen goods into England were removed, and a considerable expansion in Scotland's linen trade took effect. According to Warden, Englishmen came north and established works for sail-cloth, damask, and other linen articles heretofore hardly known in the north—the colonial trade being opened up, cargoes of Scotch goods, including linens, went to America in great quantities. The same authority states that the quantity of linen made in Scotland in 1710 was 1,500,000 yards. An Act of 10 Anne reiterates practically all the regulations of that of William and Mary regarding the manufacture, bleaching, and stamping of linens in Scotland, and in the third year of George I. an important Act was passed, making it lawful for any person to export to ports beyond the seas all sorts of linen cloth, free of all duties. The duty formerly paid was 6d. on every piece of forty ells, and had been settled in the tenth year of Anne's reign to pay off principal and interest on the orders made forth on four lottery acts.

In 1719 the sum of "£2,000 per annum, out of the revenues of customs and excise in Scotland, was allotted to be wholely applied towards encouraging and protecting the fisheries and such manufactures and improvements in Scotland as may most conduce to the general good of the United Kingdom, according to the tenor and true meaning of the fifteenth article of the Union" (MacPherson, Vol. III., p. 70); and in 1727 an Act was passed for encouraging fisheries and manufactures in Scotland, and empowering the appointment of Commissioners for managing the funds, including those formerly granted. The following citation is given by Warden :—

> " 'His Majesty's Patent for improving Fisheries and Manufactures in Scotland,' registered and sealed at Edinburgh, 18th July, 1727.
>
> " Considering that by 15th article of the Treaty of Union, it is provided that an annuity of £2,000 per annum be appropriated for seven years, for promoting manufactures of coarse wool. Considering that by Act of 5th George I., an annuity of £2,000 per annum be payable out of the Revenues of Scotland in lieu of the equivalent claimed by Scotland under Treaty of Union, to be applied to the encouragement of the Fisheries and Manufactures of Scotland. Considering that by Act of 12th George I., it is among other things provided that, should the Malt Tax of 3d. per bushel, levied in Scotland, produce a larger sum than £20,000 clear of all charges of management, the surplus shall be applied to the encouraging of the Fisheries and Manufactures of Scotland, it is provided that a plan may be laid down by His Majesty for that end, with proper Rules and Regulations for the distribution of the funds available for the purpose ; and that His Majesty may, by Letters Patent, appoint commissioners, not exceeding twenty-one, for managing and distributing these funds. We have, therefore, and for the good of our people and for advancing and promoting such Fisheries and Manufactures of Scotland, as may most conduce to the general advantage of our United Kingdom, thought fit to ordain a letter, to be passed under the great seal, etc., etc., directing the several sums above mentioned to be paid to the Receiver-General of Scotland, for the purposes above mentioned, viz., the encouragement and improvement of the Fisheries and Manufactures of Scotland in the manner and by the rules hereinafter mentioned, viz., (3) The £14,000 due under Treaty of Union for improvement of woollen manufacture be lent out at interest. (4) £6,000 of arrears of annuity (5th Geo. I.) to be also lent out. (5) Interest of said £6,000, with future annuity of £2,000 and surplus of Malt Duty, to be equally divided between the Fisheries and Manufactures of Scotland. (6) Further arrears of said annuity, and of surplus of Malt Tax which may not be yearly employed, may remain in the Receiver-General's hands for carrying out the general plan. (11) £1,500 to be annually distributed in premiums at the rate of 15/- per acre, for the sowing of lint and hemp-seed. (12) £400 to be allowed annually as salaries

> to Lappers and Stamp-Masters at £10 each. (13) £250 to be given as salaries for two 'General Riding Officers' or Inspectors. (14) £100 to be allowed for expenses of prosecutions against those who shall transgress the rules. (15) £150 for encouraging Schools for teaching children from the age of eight years to that of fourteen years to spin. (16) £50 for models for best sort of looms and other instruments connected with the linen trade. (17) £200 in several small prizes to housewives 'who shall make the best piece of linen cloth.' (22) Interest of £14,000 to be appropriated to encouragement of Woollen Manufacture. (23) Interest of £6,000 and annuity of £2,000 and surplus of Malt Duty to be appropriated by equal halves to Fisheries and Linen Manufacture. (24) The Commissioners yearly to estimate, 1st, the funds which may at that year be at their disposal; 2nd, the amount which may for that year be necessary for carrying out the objects of the Trust. (25) Plan of distribution of funds to be for three successive years, and not for one year only. (26) (to 36) Commissioners to make necessary regulations; plan of distribution of premiums; how preference for premiums is to be determined and as to matters of detail. (37) Commissioners to render annual accounts. (38) Commissioners to submit plan of next year's distribution to His Majesty for approval. (39) Authorizes Commissioners to propose alterations. (40) When not a quorum of Trustees (by reason of death or resignation or otherwise) His Majesty to name twenty-one new Trustees by a new charter."

The clauses not quoted above relate to Fisheries, and to appointment and power of Commissioners.

In this same year, 1727, "The manufacture of linen was carried on in twenty-five counties. Its principal seat then, as now, was Forfarshire; but Lanarkshire, though fourth on the list in point of quantity, was credited with the finest spinning" (Mathieson: *Scotland and the Union*, p. 347).

The Act of 13 George I. was exceedingly comprehensive, and embodied many of the regulations adopted in Ireland. The stamping of all linen sold, and a register of the lengths and values kept, afford proof of the expansion of the trade from 1727 until the restrictions imposed by the Act were withdrawn in 1822, when the stamping of linen ceased. The various regulations imposed by the Act were, in substance, so similar to those in use in Ireland that a recapitulation is unnecessary. As in Ireland, many abuses crept in and were dealt with and regulated as occasion required.

The following plans made by the Commissioners and Trustees for the application of the regular funds under their management for each of three years from Christmas, 1758, serve as specimens :—

		£	s.	d.
1.	For instructing young men in the raising and dressing of flax ; for utensils to be given them after they are instructed ; for premiums to stationed flax-raisers and flax-dressers for instructing the country farmers ; and for otherwise promoting the raising and dressing of flax, a sum not exceeding	299	0	0
2.	For hackles to be distributed in different parts of the country for diffusing the art of hackling, a sum not exceeding	80	0	0
3.	For setting up spinning-schools ; for premiums to the best spinners ; for wheels and reels to be distributed, and for otherwise promoting the spinning of linen yarn, a sum not exceeding	359	0	0
4.	For salaries to inspectors of yarn, a sum not exceeding	45	0	0
5.	For encouraging the sorting of linen yarn and selling it duly sorted to manufacturers at reasonable rates, a sum not exceeding	50	0	0
6.	For introducing new fabrics of middle-priced linens, a sum not exceeding	30	0	0
7.	For small aids to the Caroline manufacturers, and the foreign reed-maker at Picardy, near Edinburgh, a sum not exceeding	63	0	0
8.	For promoting the manufacture of fine linen by prizes or otherwise, a sum not exceeding	170	0	0
9.	For instructing apprentices in the art of bleaching, a sum not exceeding	50	0	0
10.	For promoting bleaching by prizes or otherwise, a sum not exceeding	230	0	0
11.	For providing utensils and making experiments, for improving and promoting the different branches of the manufacture, a sum not exceeding	154	0	0
12.	For salaries to lappers and stamp masters, a sum not exceeding	720	0	0

		£	s.	d.
13.	For furnishing types for stamp masters, a sum not exceeding	30	0	0
14.	For a salary to an officer for examining and abstracting the stamp master's books, a sum not exceeding	30	0	0
15.	For salaries to general riding officers for superintending and overseeing the different branches of the manufacture, and for defraying their travelling charges, a sum not exceeding	390	0	0
16.	For defraying the expense of prosecutions against transgressors of the manufacture laws, a sum not exceeding	50	0	0
17.	For a salary to the cashier's clerk, a sum not exceeding	20	0	0
18.	For defraying the expense of the Secretary's office, a sum not exceeding	230	0	0
	Sum for the Linen-manufacture	£3,000	0	0

Plan by the Commissioners and Trustees for introducing the linen-manufacture into, and improving it, in the Highlands of Scotland—for one year:—

		£	s.	d.
1.	For supporting the linen-manufacture at the newly-erected stations of Glenmariston, Loch Broom, and Loch Carron, a sum not exceeding £348 8s. od. for each station, conform to the plan or estimate annexed, making for these three stations	1,045	4	0
2.	For defraying part of the wages of two boatmen for the necessary service of the station of Glenmariston a sum not exceeding	15	0	0
3.	For defraying the maintenance of young men from the Highlands, while instructing in the raising and dressing of flax; for premiums to flax-raisers and flax-dressers stationed in different parts of the Highlands; for salaries to itinerant flax-raisers and flax-dressers, for instructing the country farmers; for purchasing lint-seed and utensils for dressing flax, to be distributed; and for otherwise promoting the raising and dressing of flax in the Highlands, a sum not exceeding ...	590	0	0

		£	s.	d.
4.	For introducing and promoting the spinning of linen yarn in different parts of the Highlands; by setting up spinning-schools; by giving premiums to sundry undertakers to employ the country in spinning; and for otherwise promoting the spinning of linen yarn in the Highlands, a sum not exceeding	900	0	0
5.	For wheels and reels to be distributed, and for utensils and premiums to be given for encouraging tradesmen of different branches of the manufacture to set up and carry on their business in the Highlands, a sum not exceeding	209	16	0
6.	For a salary to a general riding officer or surveyor, for superintending and overseeing the different branches of the manufacture in the Highlands, and for defraying his travelling charges, a sum not exceeding	140	0	0
7.	For defraying the incidental expenses in the execution of this plan, and the additional expense of the Secretary's office on that account, a sum not exceeding	100	0	0
	Total ...	£3,000	0	0

By Order of the said Commissioners and Trustees,

DA. FLINT, *Secretary.*

TRUSTEES' OFFICE, EDINBURGH,
22nd June, 1759.

Plan of estimate of what is necessary for the annual support of each of the newly-erected manufacturing stations of Glenmariston, Loch Broom, and Loch Carron :—

		£	s.	d.
1.	For purchasing lint-seed to be distributed for sowing, a sum not exceeding	20	0	0
2.	For prizes to be given among the raisers of the greatest and best quantities of flax, a sum not exceeding	3	0	0

3.	For a salary to a hackler, a sum not exceeding ...	£30	0	0
4.	For a salary to a wheelwright, a sum not exceeding	20	0	0
5.	For a salary to a spinning-mistress, and for furnishing, firing, candle, and other necessaries to the spinning-school, a sum not exceeding ...	28	0	0
6.	Towards defraying the maintenance of the scholars at the spinning-school, a sum not exceeding	48	0	0
7.	For purchasing wheels and reels to be distributed among the scholars after they are instructed, and other proper persons in the neighbourhood of the station, a sum not exceeding	50	0	0
8.	For prizes to be given among the spinners in the neighbourhood of the station, a sum not exceeding	4	8	0
9.	For a salary to a weaver, a sum not exceeding ...	15	0	0
10.	Towards defraying the maintenance of apprentices with the hackler, wheelwright, and weaver, for the second year of their apprenticeships, a sum not exceeding	30	0	0
11.	To a principal undertaker, for providing flax to the people at the station and neighbourhood, to be spun, and for defraying the charge of freight and carriage and other extraordinary expenses at the station, a sum not exceeding	100	0	0
	Making in whole for each station	£348	8	0

Besides these sums for encouraging the linen trade, Trustees had at their disposal the interest of £14,000 settled in Scotland at the Union for encouraging the manufacture of coarse woollens. £700 was the amount yearly realised, and this was spent in premiums on rough wool actually manufactured in Scotland, premiums for dyeing, sums for teaching the spinning of wool, prizes for improving the quality of the wool, and for experiments, etc.

The plan given above for improving the manufacture in the Highlands was the outcome of an Act of Parliament of the year 1753. Warden says : " This, at the time, was a judicious Act, and calculated to wean the turbulent Highlanders from their predatory and warlike propensities, and to instil a spirit of industry among them instead." The terms of this grant of £3,000 per annum were as follow :—

> "For the encouraging and improving the manufacture of linen in the Highlands only; no part of said sum to be applied for any other use than for instructing and exciting the inhabitants of that part of Scotland to raise, prepare and spin flax and hemp, to be used in the manufacture of coarse linens, and to weave yarn there spun into such linens, and for providing the inhabitants with fit materials and utensils for these purposes, and for distributing rewards and prizes to the growers, preparers, spinners, weavers, and other manufacturers in respect either to the quantity or excellence of the flax or hemp so raised or prepared, and of the yarn so spun, wove, or otherwise manufactured, and for such other like uses as the Commissioners shall think proper for promoting the true interests of this Act."

CHAPTER XXXII.

Efforts at Improvement

In the minutes of the Board of 1789 there is a proposition to sell the properties of Glenmariston, Loch Broom, and Loch Carron, as the plan had utterly failed, and the settlements were deserted. When the Scottish Board began its career in 1727 one of its acts was to secure the services of Nicholas d'Assaville, of St. Quentin, in Picardy, the same town from which Crommelin came. D'Assaville was a cambric weaver, and the idea of the Trustees was to set up an industry of fine linen in Scotland similar to the one prosecuted by Crommelin in Ireland. D'Assaville was commissioned to bring over ten experienced cambric weavers, with their families, to settle, and to teach the art of manufacture to others. Two years afterwards these people came, thirty-three in all, and were kept in Edinburgh until houses and vaults could be got ready for them. In treating later of the present-day fine spinning industry in France, the reasons for working in vaults will be given. French women were also appointed to teach the spinning of fine cambric yarns. From Warden we learn that "In 1730 the Trustees bought from the governors of Heriot's Hospital a piece of ground on which to build houses for the French weavers." A committee had been appointed to inspect the ground with a view to its purchase, and reported that they were well pleased with it, because of its nearness to the city and the villages of Broughton and Coaltown, from which they expected apprentices and spinners, and because they could procure stones out of the ground or from the quarry of Broughton for building the houses. The extent of the ground was five acres, and was purchased by the Trustees for the capital sum of £273, being the estimated value of the yearly feu-duty of £10 18s. 5d. It was sold in 1803 to Mr. Burn, architect, for £12,000. The name of the place was changed shortly after the purchase in 1730 from Broughton Loan to Little Picardy, in honour of the native country of the French weavers. It now bears the more genteel appellation of Picardy Place. In order to encourage this Edinburgh industry a prohibition was laid against the importation or wearing of French cambrics. In Ireland, Crommelin died the very year d'Assaville was appointed in Scotland, without bringing his project of fine manufacture to any proper basis of productiveness. A similar fate happened to the cambric-weaving experiment in Scotland. The prohibitions of French cambrics, even, did not save it. In 1755 the Trustees reported that "The manufacture established in Edinburgh by foreign weavers had not answered." It had but greatly increased the smuggling of French cambrics into the country. The fact that Cambrai had woven cambrics profitably for generations was a sufficient reason, it seems, for introducing the exceedingly delicate manipulation of that fabric into Scotland, where the people had been accustomed to make only the coarsest linens. But the Scotch Board was taught a lesson by its failure—a lesson which the Irish Board never seemed to learn; namely, to adapt the trade to the skill of the people. The English Customs returns gave yearly an account of the enormous quantity of linens imported from foreign countries, with full description and price of the goods. The duties on these goods alone would constitute a profit. Scotland, therefore, set about decreasing this foreign trade to England. The following table of the medium value of linens manufactured in Scotland, taking three years, but during a period of thirty years, will be an illustration:—

	Yards.	Value.			Average Price.
1728	2,183,978	£103,312	9	3	11¼d.
1745	5,536,925	£224,252	8	0	9¾d.
1758	10,624,435	£424,141	10	7	9½d.

An account of the different kinds of linen stamped in Scotland in 1758 is as follows:—

	Yards.
White Linen	2,002,030
Brown Linen	2,343,302
Harns, Strackins, and Tweels	317,073
Diaper and Dornock	176,579
Edinburghs and Dowlas	2,172,725
Striped Linens	78,162
Checks and Bengals	1,072,275
Tickens	187,660
Checkered Handkerchiefs	1,000,293
Scots Muslin Handkerchiefs	383,634
Carolines and Lawns	253,988
Glasgows	555,145
Paisleys	48,536
Calico and Satinet	14,352
Nankeens, Britannias, etc.	18,674
	10,624,435

In the above account we have omitted the fractions of yards, but have given in the addition the actual numbers of yards stamped that year, so that a slight inaccuracy will appear in the figures. The "Edinburghs" were similar to Osnaburgs, a cheap linen worth 7d. a yard.

The valuation of the above schedule of linens is as follows:—

	Yards.
At and under 6d. per yard	3,799,960
Above 6d. and not exceeding 1/-	4,810,788
Above 1/- and not exceeding 1/6	1,394,306
Above 1/6 and not exceeding 2/6	378,823
All above 2/6 per yard	240,556
	10,624.435

Fractions of yards are again omitted.

The average value per yard of linen goods stamped in Scotland during the life of the Board was about ninepence. The British Linen Company, incorporated in 1746, and established, was greatly instrumental in developing the coarse linen trade in Scotland. The Act of 1742 extending bounties on linens exported to the Plantations, which linens, intended especially for negro clothing, were of a cheap and coarse character, gave an opportunity for considerable expansion in this branch. When the British Linen Company was instituted, with a capital of £100,000, one of its purposes was to supply the Plantations with linen of Scotch manufacture, foreign goods having previously largely furnished that market. This object was carried into execution by the Company until fitting opportunity for sale occurred. Warden quotes the following from Postlethwayt's *Dictionary of Commerce*, published in 1766: "Some years ago his Grace the Duke of Argyle, and other lords and gentlemen, finding some difficulties to attend the spinners of flax into yarn, as well as the weavers of the said yarn into the different sorts of linen, by reason of the want of a ready sale for the goods, and they being made to keep them on hand for a market, were often obliged to sell them at and under value, to the great prejudice of the manufacture. On these considerations they were incorporated by a charter from his present Majesty, under the name of the British Linen Company, with a capital of £100,000, for trading in all branches of this manufacture. They import flax from abroad, lint-seed, pot and wood ashes for bleaching, and sell them on credit to proper hands, then buy the yarn and linen, all at reasonable prices, which linen, particularly the sort corresponding to Osnaburgs, etc., fit for America and the West Indies, they keep in large warehouses both here and at London, where they are sold for exportation." A minute of the proceedings of the Board of Trustees for 1747 says: "A very remarkable change began now to be observable in the linen manufacture. The fabric of the coarse cloth was much improved, and the quantity made greatly increased, which was attributed to the bounty lately granted on coarse linen, and to the great spirit of manufacture promoted over the country by means of the British Linen Company, which was erected last year by a charter from His Majesty."

In 1763 the British Linen Company ceased as a trading concern, confining its operations from that date purely to banking transactions. Its importance in the development of the linen trade, however, did not cease. Reference has been made to the pamphlet written by Lindsay in 1735. The following extracts from it will give an indication of what progress had been made during the first eight years of the Board's existence:—

> "The materials (of manufacture) at present are partly our own and partly foreign, and if we pursue the scent we are now upon, of diffusing the knowledge of the best method of preparing our grounds for raising flax, and of preparing, managing, and dressing our own flax for the manufacture, we shall soon be capable to supply the manufacture of every kind of linen goods with flax of our own growth. Every kind of linen goods is now made of flax of our own growth, except cambric, and the finest linen for shirting, above two thousand in the reed yard wide, and when the best methods of raising, managing, and dressing of flax shall be universally understood by our farmers, we shall be masters of the materials of our own product, fit for every branch of the linen trade; and the farmers will find their account so much in raising of flax, that they may be capable to sell it rather cheaper than it can be imported from foreign parts. The small funds of our own which were destined by the Treaty of Union, but never applied till the year 1727, are, no doubt, too scanty to bring the manufacture to perfection so soon as the common interests of both nations require. Was it to be promoted by as large encouragements from the public as the linen trade of Ireland was, that might be accomplished in a few years, which may be the work of an age; but we are going on under the favour of the small encouragements we have, and may possibly arrive at the great end we have in view, even sooner than we hope for. We have already made a full discovery of our imperfections, defects, and faults in every part of the trade, and we are got into the right way to amend and cure them. Every individual is sensible that his own particular interest, as well as the interest of the public, must be promoted by the extension of the linen trade, and is ready to contribute his assistance accordingly."

The writer urges the development of the linen manufacture in Scotland as a means of employing "half the people who are, in a manner, idle." "Numbers of people who in Scotland are indulged in idleness, and the linen manufacture is the most probable and the only certain way to employ them profitably." Reference is also made to the large quantities of linens imported into England from foreign countries, which maintained the poor of those countries at England's expense, and which could never return, but if the money were spent to maintain the poor within Great Britain by employing them in making linens, it must return by various channels to London, the common mart and centre of the trade of Great Britain; as the consumption of Scotch linen would increase in England, so the consumption of English goods in Scotland would rise in proportion. The only products of Scotland sent to England at that time were black cattle, sheep, coarse wool, coal now and then, some barley, oats, and linen goods, the latter being the only manufacture exported. From this we may assume that Scottish woollen goods, to the encouragement of which a sum of £700 a year was spent, were wholly consumed at home. The account says: " We have no manufactured commodity which we can sell in any considerable quantities to account in foreign parts but linen, therefore the linen trade evidently is the only manufacture we can carry on which can possibly answer all the ends of a national staple commodity." Further on in the same publication we find the following: " As for Scotland, the linen manufacture is the only way now left us to prevent our utter ruin, and being reduced to an abject state of poverty, much worse than the condition we are now in; the low state of our other manufactures for home consumption can only be retrieved by the linen trade, which is the only means whereby we can employ all our spare hands profitably. All our women (I speak of the poor) may be employed in spinning, and our men in the inland countries in some branch of the linen trade, and upon our coasts our men may be employed in the fisheries." From the above extracts it will be observed that much had to be accomplished before Scotland's linen industry would be of any great material benefit to the people. During the eight years' existence of the Board—viz., up till the time when Lindsay wrote his pamphlet—the quantity of linen cloth stamped had considerably more than doubled, although the value had not risen in anything like this proportion. This is accounted for by the reduction in average value of cloth, which in 1728 was 11½d., and in 1835 but 8¾d., a result of the policy adopted by fostering the coarse trade to which the people were accustomed. Although the funds at disposal of the Trustees were meagre when compared with those devoted to the same object in Ireland, no absolute waste was incurred in a futile attempt to teach the spinning of fine yarns. In Ireland we have seen a yearly sum of £6,825 devoted to this useless purpose, and £4,000 a year for maintaining the equally useless flax-shops. Scotland did not possess this money to squander, and so the trade was expanded on natural lines, as it should have been in the southern and western provinces of Ireland. The first three years plan of the Scotch Trustees included only £70 for the teaching of spinning, and this in places where it was least understood. The scheme embraced seven schools, the mistress in each receiving £10 as a yearly salary. The conditions laid down were as follow :—

1.—Provide for mistress having a certificate of character from the Kirk Session, and of capacity to teach spinning, from the magistrates of the burgh or justices of the peace of the county in which she resides.

2.—That in each school be taught at least fourteen scholars, aged from eight to fourteen years.

3.—That they be taught six hours every lawful day from 13th October yearly to 15th April thereafter.

4.—That the mistress shall furnish lint (flax) to such of the scholars as cannot provide themselves, and shall have the profit of their work.

5.—That when the scholars do furnish themselves with lint, or have it furnished on their account, the profit of the work shall be to the scholar.

6.—That such scholars as do attend the said school for the three seasons contracted for have the wheels which they have used for themselves.

7.—That so soon as a mistress has provided a house, and engaged scholars, the fourteen wheels shall be delivered to her on receipt.

The Board at times refused grants for spinning-schools on the grounds that spinning was so generally known and so easily acquired. In fact, in any district where coarse yarns were made a child could readily adapt herself to the use of her mother's wheel without the necessity of any special teaching. The spinning-wheels used in Scotland were of the low Irish or Dutch type, probably introduced from Ireland. Another wheel of the upright type was also used. Among the various inventions brought out in Scotland for improvements in the machines in use for manipulating flax is one of some wheelwrights in Auchtermuchty, in the year 1788, for filling the bobbins without shifting the thread from hack to hack of the flyer. This latter mode was that introduced by Jürgen, but a building arrangement had been arrived at even before his day by Leonardo da Vinci, as will be seen in the introduction to this work. Richard Arkwright patented an arrangement for this purpose in 1775. This patent of Arkwright's, which covers a number of separate inventions, was disallowed on account of the manner in which it was drawn up. The law provides that a specification, when placed in the hands of a person of ordinary skill and intelligence, must be able to show him how the invention is to be carried into effect without further assistance, and without needing corrections or fresh invention on his part, and (referring to Arkwright's specification) that mechanical men of common understanding must be able to make the machine by following the directions of the specification without any new additions or inventions of their own. (Butler: The King *v.* Arkwright.) In the specification referred to the various parts are shown in the drawing separated, much in the positions of the pieces in a child's picture-puzzle, and even if correctly assembled would not form complete machines. This may have been done designedly by Arkwright to confuse anyone who attempted to pirate his ideas. The same specification embodies

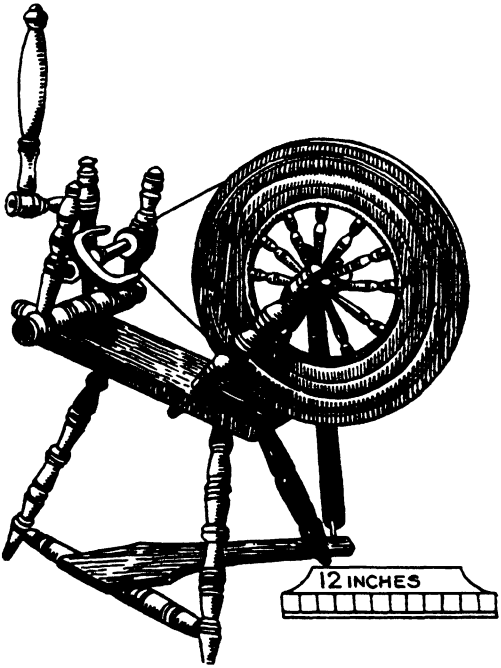


FIG. 25. SCOTCH WHEEL.

a cone motion for a differential speed in roving. Although at this early date a building motion for spinning-wheels was invented, it never caught on. All the later wheels in use anywhere had either the hacks or hooks brought in by Jürgen, or a series of holes along the flyer legs in which was inserted a brass ring, through which the yarn ran to be changed from hole to hole as occasion required. The writer has never seen a wheel with an automatic building motion except one in an industrial museum (Technologisches Gewerbe Museum) in Vienna, which was made designedly to indicate to the scholars in the Technical Institution adjoining, the application of such a movement to a spinning-wheel. Several other inventions and improvements were brought in by those interested in the industry in Scotland, amongst these being a cloth-measuring machine, a flax beater and bruiser, a diaper loom to dispense with the draw-boy. This was the invention of a certain Richard Holden, of Edinburgh, and brought out as early as 1731. We can get no trace, however, of what this mechanism was like, or of its ultimate fate. Warping-mills were also invented—one by Patrick McGillewie, of Perth, in 1743, by which, it was said, that one person could do as much as twenty could by the old method. As warping-mills were in use in Holland and in Ireland long prior to this date, it can only be presumed that the invention above noted substituted some ancient and crude methods.

CHAPTER XXXIII.

Flax and its Handling

Although Scotland, probably from soil and climatic conditions, never grew an abundance of flax, yet what was grown was carefully tended. Ireland exported considerable quantities to Scotland when the linen industry was firmly established in the latter country. Frequent complaints were made by the Scotch spinners regarding the bad treatment of this Irish product. The injurious system of kiln-drying by excessive heat, the methods of breaking the straw by beating it with a mallet over a stone, and the wasteful and ineffectual hand-scutching, all contributed to bad results. In Scotland, about 1760, a means of breaking and scutching was invented which is in use to-day. In parts of Ireland, especially at the present time, the Scotch mode, which is fully described in the *British Encyclopædia* of 1805, is in vogue.

> " The boon or straw is broken by three dented rollers placed one above the other, the middle one of which being forced quickly round takes the other two along with it, and one end of the handful of the flax being by the workman directed in between the upper and middle rollers, the flax is immediately drawn in by the rollers; a curved board or plate of tin behind the rollers directs the flax to return again between the middle and undermost rollers, and thus the operation is repeated until the boon be sufficiently broke. Great weights of timber or stone at the ends of the levers press the upper and under rollers towards the middle one. The scutching

> is next carried on by mill in the following manner:—Four arms, something like the hand-scutchers, project from a perpendicular axle, a box around the axle encloses these projecting scutchers, and this box is divided among the workmen, each having sufficient room to stand and handle his flax, which through slits in the upper part and sides of the box, they hold in to the stroke of the scutchers, which, moving round horizontally, strike the flax across at right angles, and so thresh out and clear it of boon. The horizontal stroke of the scutchers was thought too severe and wasteful of the flax; but very careful experiments have discovered that the waste complained of must be charged to the unskilfulness or negligence of the workmen, as in good hands the mill carries away nothing but what, if not so scutched off, must be taken off in the hackling with more loss both of time and flax. But to obviate this objection of the violence of the horizontal scutchers, an imitation of the hand-scutching has been applied to water. The scutchers then project from an horizontal axle and move like the arms of a check-reel, striking the flax neither across nor perpendicularly down, but sloping in upon the parcel exactly as the flax is struck by the hand-scutcher. This sloping stroke is got by raising the scutching-stick some inches higher than the centre of the axle, and by raising and lowering the stock over which the flax is held, or screwing it nearer or further from the scutchers, the workman can temper or humour the stroke almost as he pleases."

The scutching method above described is in use in all up-to-date mills at present. But except in Ireland, where it is still found in some scutch-mills, the three-roller machine has been discarded for one with a series of horizontal rollers. Scotland, as we have said, was not a great flax-producing country, and this fact evidently induced the Board of Trustees to devote, when their trust began, more than half the funds at their disposal for encouraging the growth of flax and hemp. Fifteen shillings per acre was granted for sowing flax-seed; this was afterwards increased to twenty shillings. These measures induced the farmers to sow more flax, but any returns at our disposal show that one Irish county would grow more flax than all Scotland. The general trade of Scotland to-day in linens is of a coarse description, inherited from the olden days. Russian flax is the staple universally spun; similar flax would have been equally suitable for the yarns produced from the wheels, though some strength might be wanting. Although, towards the close of the eighteenth century, we have details of flax imports from the Baltic, it seems evident that any foreign flax which Scotland may have used in the earlier time was produced in Holland, but about the middle of the century flax may possibly have found its way to Scotland from Russia. In Colonel Archdall's report of 1753, given under Ireland, it will be noted that Ireland was paying about £30,000 annually to Dutch, Russians, and Germans, and other foreigners for flax. There is, therefore, a very strong probability that Baltic flax was used in Scotland. The thrifty inhabitants of that country would be more naturally inclined to spin a material suitable to their needs, which cost them much less than that grown at home. Russia and Germany were the two large coarse-linen producing countries in Europe, and from both, especially from the latter, England imported quantities of goods. In any of the many treatises dealing with the question of England's linen imports, and advocating their reduction by the substitution of British or Irish manufacture, the matter of low manufacturing wages in these foreign countries has always been put forward as a reason for their cheaper producing power. The question of the price of the raw material seems never to have been considered. Undoubtedly this must have had a very considerable influence in cheapening the price of coarse goods in Russia, especially where a low-priced flax, suitable for the linen made, was grown then as now. Of the German flax we cannot say much—very little seems to have been exported from that country. Indeed, from a German authority (Dr. Zimmermann: *Bluthe und Verfall des Leinengewerbes in Schlesien*) we find that in 1758 the export of flax was forbidden; but judging from the wages of the people, cost of provisions, and land, its production must have been cheap. Scotland, therefore, aiming at the English export trade of these countries, took advantage of the low-priced materials used there. In 1786 Scotland imported 54,508 cwt. of flax from Russia, which was increased to 165,378 in 1799 (Oddy: *European Commerce*, p. 564); the increase between these years had a steady upward tendency. From the last-named authority we learn that three qualities of flax were shipped from Russia—best, second, and third sorts. Calculating the prices in 1793 at the then value of a gold rouble, the average was £36 a ton. For the same year Warden gives the price in Dundee market at £38 to £40, stating that for a considerable time it neither fell much below nor rose much above these figures. The average price of Irish flax at this period was £58.

If the reader will turn to tables given in the Russian section, Chap. LIII., there will be found set out the quantities of flax exported from St. Petersburg to Great Britain and Ireland from 1789 to 1804, distinguishing the three kingdoms. The very much larger quantity taken by Scotland when compared with Ireland is at once seen. From the other Russian ports the flax exports are not separately recognised for each of the three kingdoms. These tables are inserted for the purpose of showing the volume of Russia's trade; looking at them, however, in the light of British and of Irish trade, we must consider that the large quantities imported into England were for the purpose of supplying the newly-erected and rapidly-increasing spinning-mills. Not till 1792 was any attempt made at machine-spinning in Scotland, and very little was accomplished when the new century was born. In Ireland practically nothing was done until 1806, so that the Russian imports into these two countries supplied the spinning-wheels altogether in Ireland and in Scotland, at any rate up to 1800. During these years (1789–1800) the St. Petersburg exports of flax to Scotland were about five times greater than the same exports to Ireland, and yet during that period Ireland exported one-and-a-half times more linen than was stamped in Scotland. These figures show the advantage Scotland took of the cheap Russian flax, at the expense, of course, of her agriculture, and account for the small quantity of flax grown.

CHAPTER XXXIV.

Yarn Importation

Another interesting feature in connection with the Scotch trade is that of yarn importation. As her linen trade increased she saw the advantage England derived from the introduction of cheap foreign yarns. In 1786 the imports amounted to about 4,000 cwts., and increased to nearly four-fold in 1799. In the year 1800 they amounted to over 36,000 cwts., and then declined in 1803 to but 10,424 cwts. The authority from whence these figures are taken (Oddy) gives the continental source of England's foreign yarn import—namely, Prussia, Germany, and, to a small extent, Poland; for Scotland the gross quantity only is stated, the inference being, however, that the continental supply came from the same countries. To this gross quantity Ireland must have contributed when her imports to England diminished after the introduction of mill-spinning. Following, we give a table showing the total imports of yarn into Scotland from 1786 to 1803 inclusive, and the number of yards of linen stamped in the same years:—

		Yarn Imported. Cwts.		Linen Stamped. Yards.
1786	...	3,905	...	17,501,375
1787	...	5,020	...	19,425,031
1788	...	6,510	...	20,506,310
1789	...	6,481	...	19,996,075
1790	...	11,900	...	18,092,249

	Yarn Imported. Cwts.	Linen Stamped. Yards.
1791	16,539	18,739,725
1792	11,567	21,065,386
1793	8,942	20,676,620
1794	10,765	20,535,633
1795	8,417	21,374,196
1796	12,764	23,102,404
1797	9,697	19,475,241
1798	8,787	21,297,058
1799	15,166	24,506,007
1800	36,158	24,235,633
1801	13,966	25,271,870
1802	11,571	23,803,255
1803	10,424	15,890,878

Taking into consideration the class of linens made, the imports of yarns would weave into about three millions of yards, or one-seventh of the total stamped. A glance at the figures also reveals the fact that the imports of yarns became greater than the output of cloth, showing a considerable decline in home spinning. In the Highlands, as we have seen, the spinning of yarns ended in failure. The inhabitants of these regions, if inclined to manufacture, might have taken the place which many of the spinning counties did in Ireland. Although linen remained the staple of Scotland, woollens, especially in the coarse end, made fairly rapid strides, not being affected by any legislation except for its encouragement. The growth of wool became extensive, thus shutting out flax. The sheep, especially in Shetland, grew a better wool than those in England, where the breed had deteriorated; the spinning of wool being an easier and more profitable manufacture than that of flax, the people were more inclined to it. At the beginning of the nineteenth century the introduction of cotton took away a good many hands from linen-yarn spinning. Scotland, too, had built up divers minor manufactures, and was in a flourishing commercial condition during the latter half of the eighteenth century. Being no longer in the category of a poor country, the ill-paid spinning of linen yarns was not a necessary occupation for the people. Scotland gradually decreased her exportation of yarn to England, and then, as we have seen, began to import.

The success of the Scotch manufacture received a check, similar to that experienced in the sister kingdoms, from the over-production of 1771, but Ireland suffered more than Scotland. In the former country about three-fourths, and in some places many more, in the north, were out of employment; the emigration from Ulster was estimated at 30,000 people, about 10,000 of whom were weavers.

Regarding Scotland at this time, MacPherson says: "The stagnation occasioned by this decline may have contributed to induce some of the people engaged in the manufacture (linen) to leave the country. It was given in evidence before the House of Commons (in March, 1774) by Messieurs Anderson and Goldy, that 600 out of 1,800 spinners had emigrated from one district in Sutherland, and proportional numbers from other places. From the evidence of these gentlemen it appeared that some of the linens made in the year 1771 still remained then on hand; that the dulness of the demand had sunk the average price from 12$\frac{1}{4}$d. in 1769, to 9$\frac{5}{24}$d. in that year; that in four shires, which include Glasgow and Paisley, out of 6,000 looms, 2,500 were unemployed; and, in general, a third part or more of the looms were unemployed throughout Scotland and the north of England."

CHAPTER XXXV.

Stamp Act Statistics

The rise and progress of the manufacture of linens sold in Scotland is fully ascertained from the time of the so-called "Stamp Act" of 1727, until it ceased to operate in 1822. No linen was permitted to be sold until it had been inspected and duly stamped, a register being kept of the number of yards and their value. The law of 13 George I., in which was embodied the clause above referred to, also contained many other clauses based on similar lines to those in the Acts regulating the trade in Ireland. On opposite page is given an account of the quantity and value of linens stamped in Scotland in accordance with the Act.

MacPherson, Vol. IV., p. 64, gives the following table for the year 1782, showing in what districts of the country the chief branches were established. It will be noted the figures cover the whole amount stamped; the value given in round figures shows a slight difference.

Shires.	Yards.	Medium Price.	Value.
Forfar	6,742,387	8d.	£177,105
Renfrew	1,577,451	2/1⅓	166,637
Lanark	1,571,798	2/1¼	165,578
Fife	2,360,740	9⅛	90,304
Perth	1,699,682	$11\frac{6}{12}$	81,195
Edinburgh	180,120	3/–	27,229
The other shire in the South part of Scotland	427,478	—	28,112
The other lowland shires North of the Forth	432,516	—	26,470
The Highland shires, including all the islands	356,572	—	12,470
Total	15,348,744		£775,100

QUANTITY AND VALUE OF LINEN GOODS STAMPED IN SCOTLAND.

Year to 1st Nov.	Number of Yards.	Estimated Value.			Year to 1st Nov.	Number of Yards.	Estimated Value.		
		£	s.	d.			£	s.	d.
1728	2,183,978	103,312	9	3	1776	13,571,948	638,873	9	8
1729	3,225,155	114,383	19	8½	1777	14,793,888	710,633	18	7¼
1730	3,755,622	131,262	15	11	1778	13,264,410	592,023	5	4½
1731	3,891,573	145,656	14	3	1779	12,867,238	551,148	3	3½
1732	4,384,832	168,322	14	10	1780	13,410,934	622,187	16	4½
1733	4,720,105	182,766	2	1	1781	15,177,800	738,482	13	11½
1734	4,893,499	185,224	3	11	1782	15,348,744	775,098	7	5¼
1735	4,880,633	177,466	3	9	1783	17,074,777	866,983	10	6
1736	4,538,478	168,177	13	0	1784	19,138,593	932,617	1	11½
1737	4,721,420	183,620	13	9	1785	17,275,071	835,081	14	3½
1738	4,666,011	185,026	11	9	1786	17,501,375	823,447	13	1¼
1739	4,801,537	196,068	16	11	1787	19,425,031	843,920	13	5¾
1740	4,609,672	188,777	16	5	1788	20,506,310	854,900	16	2¾
1741	4,858,190	187,658	15	3	1789	19,996,075	779,608	8	0
1742	4,431,450	191,689	6	6	1790	18,092,249	722,544	12	6
1743	5,061,311	215,927	6	7	1791	18,739,725	755,546	7	8
1744	5,480,727	229,364	12	3	1792	21,065,386	842,543	14	2¼
1745	5,536,925	224,252	8	0	1793	20,676,620	757,332	0	0
1746	5,486,334	222,870	13	2	1794	20,535,633	797,416	19	4
1747	6,661,788	262,866	10	2	1795	21,374,196	827,003	13	3
1748	7,353,098	293,864	12	11	1796	23,102,404	906,202	8	4
1749	7,360,286	322,045	8	9	1797	19,475,241	735,084	4	0
1750	7,572,540	361,736	12	5	1798	21,297,059	850,403	9	9
1751	7,886,374	367,167	11	6	1799	24,506,007	1,116,022	4	7
1752	8,759,943	409,047	6	7	1800	24,235,633	1,047,598	10	10
1753	9,422,593	445,321	18	1	1801	25,271,870	1,018,642	8	0
1754	8,914,369	406,816	8	0	1802	23,803,255	915,103	17	9
1755	8,122,472	345,349	10	6	1803	15,890,878	687,692	4	6
1756	8,547,153	367,721	10	10	1804	15,198,676	749,115	13	4
1757	9,764,408	401,511	9	9	1805	19,413,057	936,453	6	8¾
1758	10,624,435	424,141	10	7	1806	21,490,123	973,171	2	8¼
1759	10,830,707	451,390	17	3	1807	20,776,774	957,238	16	0
1760	11,747,728	523,153	10	4	1808	19,390,497	1,014,629	18	4
1761	11,995,494	516,354	5	10	1809	22,469,990	1,171,880	8	10
1762	11,303,237	474,807	13	5	1810	26,457,079	1,265,669	17	2
1763	12,399,656	552,281	9	2	1811	21,499,765	999,439	4	5
1764	12,823,048	573,243	12	7	1812	18,975,862	1,020,493	11	2¾
1765	12,746,659	579,227	11	2	1813	19,799,146	977,382	1	7½
1766	13,242,557	637,346	11	2	1814	26,126,620	1,253,574	16	10½
1767	12,783,043	633,854	2	1	1815	32,056,015	1,403,766	15	2
1768	11,795,437	599,669	4	2	1816	26,112,045	1,026,674	1	11¾
1769	13,406,125	689,790	16	2	1817	28,784,967	1,092,689	2	8¼
1770	13,049,535	634,411	7	1½	1818	31,283,100	1,253,528	8	0½
1771	13,466,274	620,322	6	2¾	1819	29,334,428	1,157,923	4	11
1772	13,089,006	579,833	7	5¾	1820	26,259,011	1,038,708	18	5¼
1773	10,748,110	462,751	0	11½	1821	30,473,461	1,232,038	15	4¾
1774	11,422,115	492,045	13	8½	1822	36,268,530	1,396,295	19	11½
1775	12,139,683	561,527	10	2¾					

MacPherson continues: "In some of the remote shires, Caithness and Sutherland, the whole value of linen stamped would scarcely support the officer employed to stamp it, if his subsistence depended upon it. On the other hand, it may be observed that a very large quantity is woven from yarn spun in families, which, not being for sale, is never stamped. The quantity of such household linen in the shires of Edinburgh, Aberdeen, Ayr, Bute, Argyle, Stirling, Clackmannan, Banff, and some others is probably not less than the half, and the value much more than the half, of the linen stamped in these shires." MacPherson's voluminous *Annals of Commerce* were completed in 1805; viz., but twenty-three years after the date of the details enumerated above. It is probable, therefore, that the information regarding Scotland's purely private linen manufacture had been drawn from a reliable source. The details of the linens stamped in the various shires show the great number of yards of low-priced goods made chiefly in Forfar, Fife, and Perth, and also, no doubt, in the other shires not specifically mentioned. In 1727, it has been noted, Forfarshire was the principal seat of the linen manufacture, but Lanarkshire, though fourth in point of quantity, had the finest spinning. After more than half a century, Forfar still well heads the list so far as quantity is concerned, and Renfrew is slightly above Lanarkshire in the finer counts. In Edinburgh the finer linens still were woven, owing to the laws against wearing French cambrics and lawns. A commercial treaty with France, called "A treaty of Commerce and Navigation between Great Britain and France," dated 1736, and confirmed by the British Parliament in 1787, repealed this prohibition, and the articles mentioned were permitted importation if they came in vessels of at least sixty tons burden, and were made up in packages of not less than 100 whole pieces, or 200 half-pieces. These restrictions were probably designed to prevent the running of small vessels with lesser quantities, which could be easily and secretly landed. The original duties remained after the interdiction was removed.

CHAPTER XXXVI.

Local Developments

ARBROATH, DUNDEE, MONTROSE, ABERDEEN,
KIRKCALDY, DUNFERMLINE, PERTH

Some account of the development of the linen manufacture in various districts in Scotland is worthy of notice. In compiling some references on this subject we avail ourselves largely of Warden's work and the authorities he gives, as well as other sources. In a short work entitled *Informations to the People of Ireland concerning the Linen Trade of Spain, Portugal, and the Spanish West Indies*, written in 1790 by C. S. Merchant, the author advises regarding the kinds of goods which should be manufactured in order to compete in the above-mentioned markets with the several continental linen countries. Amongst other classes he specifies a linen called Cassarillos or Crajuelas, a grey linen resembling Osnaburgs, used by the common or lowest sort of people in Spain, and by the army. These goods, which cost from 6d. to 6½d. a yard, 27 inches wide, were originally made in Osnabrück, or Osnaburg, in Hanover, and were largely manufactured in Westphalia. They were also shipped to the Spanish West Indies, made up in single bolts, and served to fill up any cavities in the ship's hold or such places where a bale or box could not fit in. These Osnaburg linens, and the Cassarillos made in Silesia, will be more particularly described in the German section. The Spanish trade in these linens was more open to competition than that of the linens of France or Holland, these latter countries being under favourable duty conditions with Spain. The manufacture of this coarse cloth was carried on at an early date in Arbroath, and its introduction, according to Warden, may be attributed to an accident. It seems that in 1738 or 1739 a weaver in Arbroath had a small quantity of flax unfit for the quality of cloth then usually made. This was woven into a web and sold at a low price to a merchant who had been in Germany, and who at once saw its resemblance to the Osnaburgs. This led to the formation of a company of men of means, who imported the cheaper flax, and established a manufacture. " Before the end of the century the manufacture of this cloth had been extended to almost every town, village, and parish in the county, and far beyond it, and a very large amount of money was brought into the county by that branch of business." Thus began, in Arbroath and neighbourhood, the manufacture of coarse yarns, which has existed till to-day. An account of Arbroath, written by the Town Clerk in 1742, states: "The weavers are as numerous as all the other trades put together, and the greatest manufacture is coarse linen, which is commonly sold green, the greater part of which is sent to London."

Dundee is a town which took early advantage of the encouragements given by the Linen Board, and, even before the inauguration of that body, was in possession of some branches of the linen trade. As in Arbroath the cheaper Baltic flaxes were imported as early as 1742, fitted for a yarn which could be equally well spun from the tow of home-grown material, and woven into 4^{00} buckrams, worth 7d. a yard. Some years afterwards the trade was changed to Osnaburgs, and in 1773, 4,488,460 yards of linen were stamped. These figures are supplied by Warden, and taken from Pennant's Tour in 1776. The quantity given would almost equal the half of all the linen stamped in Scotland. A statistical account of Dundee gives the number of yards of Osnaburgs and other coarse linens stamped in 1789 at 4,242,653 yards, valued at £108,782, and subtracting from this a fourth supposed to be brought from six neighbouring parishes into Dundee stamp offices, there would remain for the quantity made in the parish of Dundee 3,181,990 yards, in value £80,587. During the sixteen years interval between the dates mentioned in these two reports, the linen stamped in Scotland had nearly doubled, while it would appear that in Dundee it had remained about stationary. Pennant's report evidently refers to the whole of Forfarshire; for, writing of 1747, he says: " The manufacture of Osnaburgs is now the staple of the county of Angus." The later report gives the yards of linen stamped in Dundee only, and including that made in six neighbouring parishes. From an account of Dundee, published in 1688, we learn that it was then a frequented harbour of great safety, and when stormed and taken by General Monk in 1651 there were sixty sail of ships in the harbour. From the early days of linen exportation and flax importation Dundee played its important rôle in the trade, and in consideration of the latter traffic became an important flax-market a century-and-a-half ago. It is no wonder, therefore, that this town soon became the chief seat of the linen manufacture of Scotland, a position which it holds to-day. Warden gives some spinning costs in Dundee in the days when wheels were used, and 12 head Baltic flax cost £38 a ton. The price of 3 lb. flax yarn fluctuated from 2/10 to 3/2 per spindle or spangle of four hanks, according to the rate for spinning, which varied from 1/- to 1/10 a spangle. The spinning of 6 lb. flax yarn cost 2d. a spangle less than 3 lb., and for spinning 7 lb. tow yarn from 1/6 to 2/- a spangle was paid. "Tow at that time was of so little value that it was barely sufficient to pay the hackling of the flax, but the quantity taken off was small, as the quality of the flax was then superior to what it is now (1864). At that time it was no uncommon thing to have 25 or 26 spindles of 3 lb. yarn from a hundred-weight of 12 head St. Petersburg flax." A 3 lb. yarn is 16's lea, a 6 lb. yarn No. 8's lea, the one weighing 3 and the other 8 lbs. per spangle of four hanks, so that 25 to 26 spangles of a 3 lb. yarn weighing 75 to 78 lbs. were spun from 112 lbs. of rough flax. Taking the costs mentioned above, say 38/- for a cwt. of flax, and the tow taken from it but covering the price of hackling, the cost of spinning averaging 17d. a spangle, or 35/- for 25 spangles, into which 38/- worth of flax was spun, the selling price of the yarn being 3/- a spangle, or 75/- for 25 spangles, say six bundles, any profit remaining to a factor or merchant was not large. The quality of the Baltic flax has certainly not improved since those days, if one may judge from the yield of hackled flax given, not taking any spinning waste into consideration.

Montrose had a considerable sail-cloth manufacture in 1745—some sheetings and Osnaburgs were also made. Regarding the sail-cloth manufacture it was stated by Pennant that "the yarn for this is not spun by the common wheel, but by the hands. Women are employed who have the flax round the waist, and twist a thread with each hand as they recede from a wheel turned by a boy at the end of a great room." It must not be understood from the above description that the actual twisting was done by the hand, the flax was paid out by hand to the spindle, which twisted it in the usual way. It is interesting to have a note of this economical style of spinning, which was long practised in Holland, and, we believe, is still practised there for hemp. Some description of the wheels in use in the Faroe Islands, described in the Scandinavian section of this work, will aid the explanation, although each wheel there, rotating on a pivot fixed in the wall, is turned by the actual spinner. In the Dutch system, and that used in Montrose, a number of spindles were connected up with one wheel at the end of the room, and a boy turned the lot. This left the spinner free with both hands. The spindles had neither flyer nor bobbin, being of that kind described in the introduction, and also in the English section, used for cotton spinning, the material being drawn out and spun at the same time, and when a length was completed it was allowed to wind itself on the spindle. The advantage of having both hands otherwise free enabled the girl to feed two spindles, which could be done with little detriment when coarse material was used; she could also recede as far from the wheel as would be consistent with proper spinning, at a much further distance than if she were obliged to stop within arm's length of the wheel she was herself turning, and thus a greater length of flax would be spun before returning for the winding-on. A system of this description would be inconvenient and unnecessary in a room of an ordinary cottager's dwelling; its advantage could only be found in some long and fairly broad room or barn, otherwise not in use, where a number of spindles could be turned by the aid of one boy alone. The purely domestic spinning was here, at this early stage, abandoned, and a factory system introduced. There seems to be no record of any such method in Ireland, so it may be presumed that the Scotch introduced it themselves from Holland. The Linen Board sent inspectors at various times to that country to gain information of the modes in use there. Montrose manufactured coarse linens for the army, also diapers, and had a West Indian trade in Osnaburgs.

In Aberdeen the manufacture of wool seems to have been an important industry. MacPherson, writing of the year 1765, says that woollen stockings to the amount of from £50,000 to £70,000 were annually exported from Aberdeen to Holland. These goods would find their way through Holland to other countries, notably Germany, as did the English woollen goods imported at Rotterdam. The spinning of linen yarn began in a small way in Aberdeen after 1746. According to Warden, in 1795, 100,000 spangles of yarn were spun, mostly by the wives and daughters of mechanics and labourers, for the spinning of which they were paid £5,000 sterling, but for a considerable time very little cloth was produced; the bulk of the yarns were sent to Perth, Dunfermline, Glasgow, and other towns in the south. One can see readily the ease with which the people at Aberdeen adapted themselves to the spinning of coarse flax yarns. The manufacture of woollen yarn for the stockings made was in itself no inconsiderable item, and the knowledge of this manufacture rendered the women fitted to spin coarse linen yarns without much special training. That such quantities of woollen yarns were knitted into stockings would reasonably point to the fact that little or no woollen weaving was carried on; hence we find the linen yarn sent to weaving districts.

Warden notes that the manufacture of linen thread was early begun in Aberdeen, and carried to so great perfection that for a long period it was almost unrivalled. At one time, towards the end of the eighteenth century, Aberdeen made more thread than any town in Scotland, all for the English market. Continuing, Warden says, quoting from Sir John Sinclair's *Statistical Account of Scotland:* "About 1795 this thread manufacture employed nearly 100 boys, who earned from 1/8 to 2/6 a week; 600 men earning from 5/- to 12/-, and fully 2,000 women, who had constant employment in spinning yarn, doubling and twisting the thread, etc., and who earned, when employed in the manufacture, from 5/- to 6/- a week; when employed at home rather less, as their time was partially occupied with household duties. In addition to these mentioned in the city and suburbs, fully 10,000 women were occasionally employed in the country around, spinning the linen yarn for the thread." Here again we find a manufacture easy to acquire, as the same method used for twisting the woollen yarn for stocking making would be required for twisting the linen yarn into thread.

Kirkcaldy seems to have had an old-established, though not extensive, trade in bed ticking, and checked and striped linen. In 1733 the total amount of linen stamped in the town was 177,740 yards. Ten years later this was nearly doubled, and amounted in value to £11,000, including that made in Abbotshall, Dysart, and Leslie. The linens and common checks were sold for exportation, the tickings were made for home consumption and were mostly sold at local fairs, but in 1773 an improved ticking was made which secured a large part of the English market. In 1792 there were 810 looms employed in these manufactures in Kirkcaldy and the neighbouring parishes, and in the whole district 2,000 looms were in work, weaving cloth of an estimated value of £110,000. The above is but a short abridgment from Warden, and shows the relative importance this part of Fife had acquired. The value of linens stamped in 1793 was about one-seventh of the whole of Scotland, although the number of yards woven would be less, considering the value of the material. The average value of linen made in Scotland in the year mentioned was under 9d. a yard. The ticking was valued at from 7d. to 2/6, and yet in the same year the number of yards of linen stamped in all Fifeshire was within a fraction of one-fourth of the whole stamped in Scotland; and as very little coarse linen was made in Kirkcaldy district, it shows a preponderance of that material for the rest of Fife.

Dunfermline had long been the seat of an important damask trade. This, it has been said, was introduced by one James Blake, in 1718, who learned the secret of the process at Drumsheugh, near Edinburgh, gaining admittance into the works there by feigning idiocy. It is somewhat difficult to conceive what use one would have for an idiot in a damask factory, or how anyone feigning this mental disease could gain perfect knowledge of all the intricacies and complications of damask weaving. If any credit is to be given to the story, it may be wiser to assume that he gained admission as a workman. We can find no trace of damask weaving at, or near, Edinburgh about the time stated; although it is well known that English textile manufacturers came north after the Union, attracted by the cheapness of labour in Scotland; for when the duties were removed, and Scottish pedlars permitted unrestricted sale in England, it was seen that cheap labour conditions enabled the goods to be sold at a price with which that of English manufacture could not compete. It is probable that table-linen was made in Dunfermline before 1718, and that the art of damask weaving came through the French refugees, one of whom, Nicholas Dupin, had been employed in prosecuting a manufacture of fine linen in England, and came at the instance of an English company to Scotland for a similar purpose. These companies probably shared the fate of others, which were started at the time and collapsed after full inflation by their stock-jobbing promoters.* An interesting work, published in 1903, by Daniel Thomson, entitled *The Weavers' Craft*, a history of the weavers' incorporation of Dunfermline, mentions the early manufacture of linens in that town. In 1759, it would appear there were about two hundred and sixty looms in Dunfermline, about twenty being damask. They wove tickings and checks in winter, and table-linen in summer. Warden also mentions this custom of division in weaving, stating that it is difficult to determine why it had been established. In those days bleaching was only conducted during the summer months, and as damask is carefully bleached, the reason is probably owing to that fact. Certainly piling up a stock of expensive damask in the winter time, which could not be disposed of until bleached, would require an amount of capital hardly available. In Mr. Thomson's work there is a quotation from Dr. Chalmers' *History of Dunfermline*, in which it is stated the British Linen Company established a large weaving concern in the town in 1749, when there were four hundred looms in the parish, yet in 1763 there were only ten or twelve damask-looms within the same limits, and in 1778, not above twenty looms were used on this kind of fabric. The 1759 computation given in Mr. Thomson's work was taken from MS. notes of that date of a Dr. Henderson, but no official record on these points exists. Mr. Thomson states that, in 1792, the looms numbered twelve hundred; the number of damask-looms included in this is not mentioned. From these accounts we arrive at the conclusion that although Dunfermline was early a damask-weaving town, yet the manufacture was of little importance until after the introduction of the Jacquard machine there in 1824. From then onwards the progress has been rapid. Amongst other towns in which the coarse linen trade was successfully carried on may be mentioned Forfar, Blairgowrie, Brechin, Kirriemuir, Lochee, and Cupar. In Dysart, checks and ticking were manufactured before the establishment of the Linen Board. In 1790, there were between 700 and 750 looms employed on these goods, making 795,000 yards at 11½d., medium price.

Perth had a linen industry of considerable antiquity. Warden gives a report of the trade in this city in 1794, made by a member of the Literary and Antiquarian Society there, at the date mentioned.

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* An account of Dupin's Scotch Company appears in the October, 1904, *Scottish Historical Review*. The embarrassment of the English Linen Company hampered its success. The Scots Linen Company failed to pay its way, and was wound up in the first years of the 18th Century.

Linen was the staple manufacture, there being upwards of 1,500 looms employed on linen and cotton, weaving goods to the annual value of £100,000, besides which at least £120,000 worth of linens was sold in Perth market, all of which was woven in the surrounding districts. The linen goods comprised bleached and fine linens, chiefly printed for handkerchiefs, with Britannias, Kentings, etc., for export (Perth had long been famed for the manufacture of these articles), also stout Hollands for sheetings, and 7/8 and 4/4 Holland shirting, and some long lawns. 4/4 brown and bleached linen for hat linings, buckram, etc., brown Hollands, Hessians, pack-sheetings and other coarse fabrics were made in the neighbourhood, as well as soldiers' shirtings and Osnaburgs, 5/4 wide umbrella linen, linen for window blinds, etc. There were three printing works in the neighbourhood—Ruthven, Tulloch, and Cromwell Park—doing business to an extent of £80,000 annually; the produce of these works being shipped to Perth, chiefly for the London market. The printers there had a full demand for linen for handkerchief printing, the staple manufacture of the town and neighbourhood, and likewise supplied part of the country demand both in England and Scotland. There were four bleach-fields in the vicinity of Perth, which bleached cloth the country around, and for the manufacturers in the principal towns in Scotland, and even from England cloth was sent. At Luncarty about 600,000 yards were bleached annually, two-thirds of which were low-priced linens, also diaper and table linen from Dunfermline, Edinburgh, Perth, etc.; the remaining third consisted of fine linens and sheetings At Tulloch, about 300,000 yards, chiefly low-priced goods, were bleached. At Huntingtower were bleached fully 600,000 yards, two-thirds of which were low-priced goods, and the remainder diapers and fine goods. At Stormont were bleached about 450,000 yards Silesias, Britannias, shirtings, etc., and the other third diapers and fine goods. From 1783 to 1788, the average yearly import of flax was, from Holland 48 tons, and from other ports 23 tons; and from 1788 to 1793, from Holland 63 tons, and from other ports 15 tons.

The weaving of linens was carried on very generally throughout the shires of Forfar, Perth, Ross, Banff, Kincardine, Aberdeen, and Fife, to a lesser extent in Elgin, Stirling, Argyle, Kinross, Dumfries, Roxburgh, Wigton, Caithness, and Inverness. In this latter shire, hemp for bagging purposes was a considerable industry, and thread-making provided employment for a large number of hands.

CHAPTER XXXVII.

The Influence of Cotton

Regarding the three western shires of Lanark, Renfrew, and Ayr, the trade of the former two was considerable; in Ayrshire it was much smaller. The rise of the cotton industry pushed the trade out of these shires. To quote from the proceedings of the British Association at their Glasgow meeting in 1901, there were in the Barony Parish of Glasgow alone, about 3,000 looms in 1780, when cotton-spinning was in its infancy, making lawns, cambrics, diapers, checks, handkerchiefs for printing, and "blunks"—fabrics of linen-warp and cotton-weft used for neckties, gowns, and bed curtains. The following table shows the advance made in the three shires mentioned—the last line indicates the decadence due to the introduction of cotton.

LINEN STAMPED.

	Lanarkshire.		Renfrewshire.		Ayrshire.	
Year.	Yards.	Value.	Yards.	Value.	Yards.	Value.
1728	272,658	£9,968	85,527	£6,852	26,699	£2,086
1738	605,234	30,140	257,737	16,853	68,723	3,252
1748	1,191,982	54,127	398,279	25,291	95,190	5,351
1758	1,951,693	86,530	788,491	51,660	139,161	7,480
1768	1,994,906	172,764	674,178	66,387	123,543	6,590
1778	1,748,674	142,446	1,467,935	96,201	50,286	3,000
1788	1,362,150	109,440	1,671,346	115,817	54,109	3,314
1822	22,869	1,951	25,685	3,107	20,826	3,196

Cotton-spinning began early in Scotland and took immediate hold—in 1787 there were 19 mills. In 1796, according to statistics submitted by MacPherson, and taken from Brown's *History of Glasgow*, there were in that city alone thirty-nine water-mills (viz., mills on the Arkwright principle), which cost,

For machinery and buildings, £10,000 each		£390,000
Employing	124,800 spindles.	
1,200 Common Jennies	100,800 ,,	7,200
600 Mule Jennies	86,400 ,,	18,000
Total working day and night	312,000	
Building for Jennies cost		75,000
Capital invested in machinery and buildings		£490,200

The annual value of the yarn spun was estimated at £1,256,412, and the people employed at 25,000 of both sexes, but the greatest number under 15 years of age. The same account gives the number of weavers working cotton goods in Scotland at 38,815, besides employed for warping and winding 12,938. The account also estimates 105,000 women and young persons as engaged in adorning the muslins with tambouring or needle-work. Although these figures are quoted by a historian of the actual period, we feel inclined to consider them as overstated. The census of 1801 gives Glasgow a total population of 77,385 souls. The city was always an increasing one, so that it is somewhat difficult to imagine how, out of a lesser population than that given, about 25,000 could be found to supply labour in the cotton mills. The number of weavers given is out of all proportion to the quantity of yarns spun, with the addition of yarn to the value of £520,000 from England, unless indeed the weavers, with their attendant winders and warpers, were but occasionally employed. The same remarks may refer to those stated as employed in the sewed muslin trade. In any case, it may be reasonably inferred that the cotton industry in Scotland at this date engaged a very large number of hands in comparison with the population, which might be estimated at one and a half millions (in 1801 the population was 1,608,420). We have purposely endeavoured to arrive at the dimensions of the cotton industry, in order to discover what influence this invasion had on the linen trade, and we may fittingly close these chapters by dealing with the question in Scotland and then in the other kingdoms.

The 11th Edition of the *Encyclopædia Britannica*, Vol. 16, p. 724, contains the following: " The inventions of Arkwright, Hargreaves, and Crompton, in the latter part of the 18th century, benefiting, almost exclusively, the art of cotton-spinning, and the unparalleled development of that branch of textile manufactures, largely due to the ingenuity of these inventions, gave the linen trade, as it then existed, a fatal blow. Domestic spinning, and with it hand-loom weaving, immediately began to shrink. The trade, which had supported whole villages and provinces, entirely disappeared, and the linen manufacture, in attenuated dimensions and changed conditions, took refuge in special localities, where it resisted, not unsuccessfully, the further assaults of cotton, and, with varying fortunes, re-arranged its relations in the community of textile industries."

In considering these statements, which we believe are very generally accepted, we will deal, as stated above, first of all with Scotland, before any re-arrangement was made; viz., while yet the spinning-wheel produced the yarn. The large number of people suddenly called upon to contribute their labours to the various ramifications of the cotton trade would lead one to suppose that the linen manufacture had, of necessity, been deprived of numerous hands employed in that branch. This certainly did take place in and around Glasgow, where the cotton industry had chiefly centred, largely owing to the influence and exertions of Richard Arkwright himself, who, when deprived of his patent-rights by the body of Lancashire spinners, said, probably thinking of his original trade, that he would find a means of shaving Manchester, and in 1785 commenced operations in Glasgow, where labour was cheap, and his example was rapidly followed. In 1801, Glasgow had over 77,000 inhabitants, so that when Arkwright and others began cotton-spinning there was a considerable population to draw upon in the city itself, without taking into consideration the rural populations. The driving out of the linen trade from Glasgow, and the shires of Ayr, Renfrew, and Lanark, merely drove it to other Scotch shires, where it flourished and expanded under the old conditions. From 1785, when cotton-spinning was successfully introduced into Scotland, until 1796, the year when the statistics we have enumerated were compiled, the yards of linen stamped rose from 17¼ millions to over 23 millions.

Let us now look to Ireland. With the exception of the years immediately following the great over-production of 1771, which has been fully accounted for, the exports of linen goods show practically an ever-constant increase. Taking the dates chosen for Scotland, in 1785 Ireland exported 26¾ million yards of linens, and in 1796 no less than 46¾ millions. These figures are eloquent, and require no comment. Ireland during these years was spinning on the wheel, and weaving only wheel-spun yarns. It was with great difficulty during the first and subsequent decades of the 19th century that English spinners induced the Irish to use machine-spun yarn—only by giving six months' credit could the weavers be induced to make a trial. In 1792 Ireland's export of yarn began to decrease somewhat, and more decidedly after the new century began. These decreases were entirely owing to England's production of machine-spun yarn.

In the case of England, the great difficulty in computing the volume of the linen trade there at any time makes it somewhat hard to determine the influence cotton had upon it. But by using the means employed before, we find there is little change in England's total linen-yarn imports during the critical period of cotton invasion. The following table illustrates this :—

LINEN YARN IMPORTED INTO ENGLAND.

Years.	lbs.	Years.	lbs.	Years.	lbs.
1787	8,849,061 ...	1791	8,406,633 ...	1795	7,735,898
1788	8,696,946 ...	1792	8,228,479 ...	1796	6,584,848
1789	8,682,870 ...	1793	8,160,452 ...	1797	6,200,785
1790	8,943,865 ...	1794	6,431,339 ...	1798	8,244,948
-	—	—	—	1799	8,853,771

The above table, which is taken from official reports, is curious. We have inserted it here for the purpose of showing that England's linen manufacture, from imported yarns at any rate, did not shrink,—but it presents another aspect. In 1793 English machine-spinning became commercially successful, and the three following years show a very natural decline in the yarn imports, which, however, increase again to their former dimensions. By far the greater portion of these yarns came from Germany and Prussia, some few were from Poland, the Isle of Man, and other countries not enumerated. The decline noted above in Ireland's exports was made up by the two former countries, the power of cheap production in which must have been great. The table, while showing no contraction in England's manufacture from imported yarns up till 1793, shows certainly no expansion, but we can well imagine what took place when the English mills were turning out machine-spun yarns in great quantities. Even they were insufficient for the increased linen trade, as is evidenced by the fact that the import of foreign yarns bounded up again. The onslaught of cotton occurred in the very midst of England's linen-weaving community, and yet the effect was not seriously appreciated up till 1793; after that date England's linen industry got a new lease of life, owing to improved methods. Valid reasons may be found for the continued existence of linen under the old conditions in face of the opposition under the new. The following Board of Trade returns of raw cotton imported into Great Britain show the developments of the industry a number of years before and after the introduction of cotton machinery.

Years.	lbs.
1720	1,972,805
1730	1,545,472
1741	1,645,031
1751	2,976,610
1764	3,870,392
1771 to 1775 (annual average)	4,764,589
1776 to 1780 „ „	6,766,613
1781	5,101,920
1782	11,828,039
1783	9,735,663
1784	11,482,083
1785	18,400,384
1786	19,475,020
1787	23,250,268
1788	20,467,436
1789	32,576,023
1790	31,447,605
1800	56,010,732

The average price of raw cotton was 18d. per lb. up till 1820, when it fell to 11½d. What we wish to point out is that cotton at 18d. a pound is not a serious competitor with flax at 8d., even when the latter is spun on the wheel, and we consider the early crude cotton machinery. Although Arkwright's frame was in use as early as 1769, the imports of cotton show no abnormal increase until 1782. In fact, there is but a gradual growth, which under the old spinning conditions might have been expected. During this period the only competition linen had to bear was caused by the introduction of cotton warps, made from a very high-priced raw material. The following table gives the value of British cotton goods exported during similar periods:—

OFFICIAL VALUE.

Years.			Years.	
1720	£16,200	...	1766	£220,759
1730	13,524	...	1780	355,060
1741	20,709	...	1787	1,101,457
1751	45,986	...	1790	1,662,369
1764	200,354	...	1800	5,406,501

Note that the increase suddenly reached in 1764, and maintained in 1766, was under wheel-spinning conditions, and that during these periods Indian-spun yarns must have been largely imported. There is no extraordinary progress up till the end of 1780, the great increase being, no doubt, contemporaneous with the increase in raw cotton imports in 1782. These figures lead us to the natural conclusion that up to the date last-mentioned, and after 13 years' operation of Arkwright's machinery, the linen trade was not materially damaged, and its steady progress, with certain ups and downs, is thus accounted for.

To explain the great and sudden rise in the cotton manufacture of Great Britain in 1782, and its very rapid progress afterwards, we must consider a new development in the trade, and one which influenced linen very slightly. In 1779, Samuel Crompton, a quite obscure weaver, perfected, after five years of labour, the mule spinning-frame. Crompton, in the opinion of many, deserves the highest place among these early inventors. This frame, which was a combination of roller-drawing and spinning on the Jenny principle, enabled him to produce yarn of exceeding fineness, combined with evenness and strength. He had no means whereby to secure a patent, and when the products of his frame became known, he could not hold his secret long. The machine was improved, adapted to power-drive, and then a competition began, not with linen, but with the fine cotton products of India. We have, unfortunately, no available statistics of this great Indian industry, which would clearly show what, however, is the well-known and accepted influence Crompton's mule had upon it. In 1799, an account of the sales of the English East India Company shows a decline in Bengal piece-goods of about 10 per cent. compared with similar sales in 1791, but an increase in Surat and Coast goods more than counter-balances this. The total sales, in 1799, of all products supplied by the Company amounted to £10,160,610 compared with £5,141,532 in 1791, showing an enormous general increase which is not maintained by the sales of cotton goods. The trading of the French East India Company must have been considerable, as many of the important Indian cotton-weaving territories, including Dacca and the territories belonging to it, were, by amicable arrangement with England, acknowledged to be under the protection of the French flag, and subject to French jurisdiction, but we have no means of estimating the volume of trade. The Dutch East India Company, once so powerful, was about this time coming to an ignominious termination, as also some of the smaller companies under the protection of other European States. One evidence available of the fight between England and India, in this trade, is shown by a memorial presented to the Privy Council for trade by the English manufacturers in 1787. It complains of the East India Company, which happened, unfortunately for the British manufacturers, to have a very large stock of piece-goods in their warehouses, and charges them with having purposely augmented this stock, and by thus lowering the prices, with trying to destroy British industry in favour of their own subjects in Hindustan and their own commerce. The Privy Council decided, however, to place no restrictions upon Indian commerce. But the incident shows the fierce competition existing but five years after mule-spinning was successfully established. There is even some evidence of attempts made by the British manufacturers to invade India itself, but a failure to appreciate Oriental tastes made the venture unsuccessful. For a considerable period the greater demand at home occupied the attention of manufacturers, and this demand very probably had the effect of not greatly lessening Indian imports. An account in 1785 says: "Women of all ranks, from the highest to the lowest, are clothed in British manufactures of cotton, from the muslin cap on the crown of the head to the cotton stocking under the sole of the foot. The ingenuity of the calico-printers has kept pace with the ingenuity of the weavers, and produced patterns of printed goods which, for elegance of drawing, exceed everything that ever was imported. With the gentlemen, cotton stuffs for waistcoats have almost superseded woollen cloths, and silk stuffs I believe entirely, and they have an advantage, like the ladies' gowns, of having a new and fresh appearance every time they are washed. Cotton stockings have also become very general for summer wear, and have gained ground very much upon silk stockings, which are too thin for our climate, and too expensive for common wear for people of middling circumstances." The same account says: "Now cotton goods are very much used in place of cambrics, lawns, and other expensive fabrics of flax." This account indicates the new uses to which cotton was put, but shows an interference only with the fine end of the linen trade, which was supplied chiefly by France. The account is from MacPherson, Vol. IV., page 81. We have endeavoured to show, and we think successfully, that the linen trade suffered no material injury by the impetus given to cotton. When raw cotton reached a price low enough to make its competition dangerous, the linen trade was equipped with machinery which kept cotton in its proper place, and it would seem that ever since each fabric has, generally speaking, maintained its relative position. It must be conceded that the cotton trade has bounded upwards with enormous strides, while that of linen has, in comparison, remained stagnant, but the legitimate uses to which linen must be put can never be replaced by any kind of cotton manufacture.

FRANCE

CHAPTER XXXVIII.

Early Notices

In France we come amongst a people long renowned for their love of good linen. This very estimable quality induced a considerable manufacture, although in the early days much was imported. For many years the chief industry of France was agriculture. A fertile and well-cultivated soil, and the wealth derived from wine production, enabled the nation to purchase their linens, which they did chiefly from the Flemings. In the Irish section of this work a passage from Crommelin's essay is cited as follows: "In St. Quentin the manufacture of linen has flourished for several hundred years. My ancestors, beyond the memory of man, have been constantly gainers by the trade." Voltaire, speaking of the times of Francis I. (1494–1547), says: "The French, though possessed of harbours, both on the ocean and Mediterranean, were yet without a navy, and though immersed in luxury had only a few coarse manufactures. The Jews, Genoese, Venetians, Portuguese, Flemings, Dutch, and English traded successively for us, we being ignorant even of the first principles of commerce." MacPherson remarks that, in 1560, Antwerp sent to France great quantities of fine linen. Again in the same work we find that the manufacture of both woollen and linen was much increased in the reign of Henry IV. (1572–1610), so that the French (says de Witt in his *Interest of Holland*) "could now supply others with more manufactures than foreigners could take off, whereas formerly the bulk of the people of France subsisted by tillage and vine-dressing."

We give here a translation of some remarks made by M. Alfred Renouard, Fils, in his valuable work, *Etudes sur le Travail des Lins*, which describe the early history of the linen industry in France, and which are well worthy of perusal:—

STUDIES ON THE MANIPULATION OF FLAX.

> . . . . . "The history of flax-spinning in France is divided into two periods; the first during which it was only a manual industry and working families' work; the second, where it passes into a mechanical industry, sees it enlarged and prosperous in the form of large manufactories, and become for our country one of its richest resources. But as hand spinning is of more interest to the antiquarian than to the manufacturer, we will only indicate its principal phases and dwell at greater length on the mechanical industry. Amongst our local industries, if there is one that we can own as ours, it is certainly that of flax. It seems that in Flanders the use of flax has no commencing date, because as far back as we can go everything indicates that flax was the first textile material used for clothing purposes.
>
> "When the Romans conquered Gaul our fields filled them with admiration. Cæsar, in his *Commentaries*, does not fail to describe the 'sagum' of our ancestors—made of flax yarns—from which we certainly get the 'sarrau' of to-day.
>
> "Strabo and Pliny tell us that, in their time, our country was covered with corn, wheat, and with flax, from which were made divers kinds of linens. The Franks did not disdain to continue the tradition, and in the eighth century Charlemagne encouraged flax culture.
>
> "He forbids, in his laws, to spin on Sundays (789), and specifies the punishment to be inflicted on those who committed robbery of this plant (798), and he stipulates that flax should be spun at Court to have garments made of same. In the next century we see Charles le Gros (884) command that all women, even princesses, should be taught the art of spinning and weaving flax.
>
> "The historians of that time speak of the silver staffs used by the Court ladies, but they say nothing of the loom which was used for making the linen.
>
> "Amongst the documents which remain, referring to the industry of Flanders, one deserves to be signalized. It is reported that when Isabel of Flanders entered the town of Courtrai, the magistrates wished to give the countess an idea of the principal industry of the land, and at the same time teach, as well as amuse her. They presented, therefore, in her presence, the divers manipulations of flax on a theatre of ten compartments. Preparation of the soil, sowing, cutting, reaping, retting, and scutching,—in a

> word, all the divers operations up to the hand-spinning, weaving, and bleaching, even the selling of the goods, were simulated before her. We could cite a great many more documents to prove that this industry was largely spread here and, in a certain way, venerated. But, outside Flanders, linen was of a great rarity in France, and only great personages could buy it, and the daily use of linen on the body was regarded as a great extravagance . . . . The County of Laval was the first that profited by the example of Flanders. It is generally known that in that country they owe the first manufactures to Beatrix of Gaure, Countess of Flanders, who brought the various labourers and weavers with her when she married the Count of Laval. Little by little, however, the use of flax tissues began to generalise itself among the middle classes, and the commerce of same began to increase, quite as much because it was found to be a profitable one, as because it was discovered that the use of this stuff helped to cure divers skin diseases, leprosy particularly."

The first mention of French linen we find in MacPherson's *Annals of Commerce* dates back to A.D. 14: "The Romans received from Gaul, besides the tributary metals of gold, silver, iron, etc., dug from the mines of the province, linens, which were made in every part of the country." The internal navigation of France was very suitable for transit,—navigable rivers running in very opposite directions, goods could be carried from the Mediterranean to the Atlantic with a minimum of land transport. At a much later period it is mentioned in Gibbon's *Roman History* that amongst other costly presents sent to the Turkish Sultan by the King of France, to induce him to ransom his captives, was fine linen of Rheims. MacPherson mentions, under date 1415: "It appears from the rolls of the King's wardrobe that the greatest part of the linen used in England, especially by those of the higher ranks, was imported, and was chiefly of the fabrics of Rennes and Champagne in France, and of Flanders and Brabant in the Netherlands." In a footnote is added: "The excellence of the linens of those countries is celebrated in many romances and poems composed before the age now under consideration."

We will select a few passages from Marshall's work, in which he refers to his travels through Flanders in 1768. These throw some light on the linen industry at that time. We quote his own words in reference to the cambric manufacture:—

> "They certainly make that kind of linen to a perfection unknown at any other place in Europe; pieces of great length weigh but a few ounces; they make it up to seventeen shillings

> an ell, but it is of an amazing fineness. I made numerous enquiries into the state of this manufacture, and from several persons well-informed, and they seemed uniform in their opinions that it is much upon the decline. They attributed much of this evil to the prohibition of it in England, to which kingdom their exports used to be very great, but now they are confined to the smuggling trade, which, though not trifling, bears no proportion to what they once possessed. The number of men, women, and children employed at Cambrai, and some adjacent villages, on the manufacture of cambric, does not fall short of seventeen hundred. The men earn at an average five shillings and sixpence a week; women that are good hands, two shillings to three and sixpence, and children from a penny to sixpence a day, but these prices are when employment is full; for some seasons they have much time without being able to get work."

The prohibition mentioned above had reference to an Act of George III., c. 43, of the year 1767. This Act was passed enforcing and amending the several laws already existing against the importation of French cambrics and French lawns, to be used in Britain, and restricting the importation of them to the port of London for re-exportation only. By a Treaty of Commerce and Navigation in 1786 between Great Britain and France, a perfect liberty of commerce and navigation was mutually granted to the subjects of both powers in their European dominions. Next year this was confirmed by authority of Parliament.

CHAPTER XXXIX.

The Unapproachable Cambric

The following account of the cambric industry, as practised in France, is taken from the *Museum Rusticum et Commerciale.* It is an account of a similar industry started in Winchelsea, in Sussex. This has not been introduced into our account of England's linen trade, as the industry was unsuccessful and of such short duration.

> *A letter to the Editors, containing a short account of the manufactory for making cambrics, lately established at Winchelsea, in Sussex.*
>
> " GENTLEMEN,
>
> " You may not perhaps be displeased that the public should, through the channel of your connection, be made acquainted with an infant manufactory, lately established at Winchelsea; I mean that for making the very fine linens called cambrics (*a*), equal to those which used formerly to be imported from France.
>
> " The public-spirited gentlemen who first ventured on this arduous, as well as hazardous, undertaking have reason to flatter themselves that their scheme will succeed, and turn out, not only to the great benefit of their country, but likewise to their own particular emolument.
>
> " The workmen that are now employed are chiefly French; but English children are daily bound apprentices to them, that

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(*a*) The cambrics received their name from Cambray, a city in the French Netherlands, where great quantities of them are annually manufactured.

the secrets and mysteries of the several branches may soon become our own.

" From the specimens already exhibited, there is great reason to conclude that this manufactory will succeed ; the establishing of it has already had a wonderful effect on this town and neighbourhood ; everything seems alive ; and Old Winchelsea (*a*) is, as it were, arisen like the phœnix out of its ashes.

" It was a very difficult matter to procure workmen skilful enough to manufacture this fine cloth ; and it was still more difficult to get flax proper for making yarn fine enough ; yet both these difficulties are surmounted ; the first by procuring proper hands from France, and from among the French prisoners, who were maintained here for so many years during the late war ; and the latter by improving the culture of the flax they sowed in the neighbourhood, in the following particulars.

" It was necessary for them that the fibres of the flax should be fine, slender, and long, and that in a much greater degree than in the linen made in Ireland for shirting, sheeting, etc. ; for this reason they proceed in the culture of their flax in a manner very different from the practice of the Irish farmers.

" The land on which the plant is to be sown must be very fresh (*b*) but not rank, for that would defeat their intentions of having the fibres fine. If it will do without dunging, so much the better. For the crop to succeed well the soil of this land should be reduced, by frequent tillage, as fine as garden-mould ; the stones should be all picked ; and the land, whilst it lies fallow, that is, before the seed is sown, should be kept as clear as possible from every kind of weed.

" After preparation is made, the best seed that can be procured is sown very thick on the land ; and if the weeds have been previously well destroyed, they will not afterwards hurt the crop. The plants standing very thick run up slender without branching ; but, in order still to promote their growth, the planters stick the crop very full of long sticks (*c*), and on these they lay bushes, which, shading the plants from the intense heat of the sunbeams, make them run up very slender ; and they yet enjoy air and warmth enough to prevent their stems or stalks from rotting by too much moisture.

(*a*) Old Winchelsea, which was two or three miles from the site of the present town, had eighteen parishes, and was of great consequence. It was swallowed up by the sea before the time of Edward I., in whose reign the present town was built.

(*b*) The soil on which they grow their finest flax about Cambray, though good and fruitful, is dry, and this prevents perhaps the crop from being too rank.

(*c*) This method is also frequently practised in Ireland by some of the curious flax growers who would have very fine yarn, and it is said to answer that intention by causing the fibres to grow long and slender.

"This method may possibly, by some of your readers, be thought very troublesome and expensive, and not to be practised in large concerns; and this is certainly the truth; but we are then to consider, that in these fine manufactures, a small quantity of flax will go a great way; and that the planter's aim is to procure not a large crop but a valuable one.

"If the flax is of proper growth for making very fine yarn, fit to be used in the Winchelsea manufactory, it fetches a great price; if, on the contrary, by the planters sparing either pains or expense, it should be too coarse or short, it will not there be saleable.

"For the reason above recited, it is the planter's interest to be as nice as possible in the culture of this plant, and to procure every intelligence he can that may enable him to improve the quality, not the quantity, of his crop; for on that only, in a great measure, depends his future profit.

"The manufacturing the yarn, by weaving it into linen, is very delicate work; and this is chiefly done in the fine stone vaults with which this town abounds (*a*), for the skilful workmen say that the thread is so fine and delicate that it will not, before weaving, bear the influence of the upper and freely-circulating air; for, after being but a very little time exposed to it, the yarn becomes unfit for the loom (*b*), as it would be brittle, and, in the working, break into short lengths, as if it was rotten.

"Before French cambrics were prohibited by Act of Parliament, the quantity of them consumed in England was almost incredible; it is therefore to be hoped that our ladies will not be less fond of this Winchelsea linen (which equals the French cambrics in quality), merely because it happens to be manufactured in England. Foreign fripperies have been too long admired; it is time that a patriotic spirit of emulation should take place among us, and that we should vye with each other in our endeavours to promote the commerce of our native land.

"On the quantity of commodities manufactured in this kingdom depends, in a great measure, the preservation of the balance of trade, which has been of late years so much in our favour; must we not, therefore, be infatuated to prefer making any part of our apparel of foreign materials, particularly when

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(*a*) The streets of this town were all paved, and at right angles, so that they were divided into thirty-two squares or quarters. The stone works of its three gates are standing, though three miles asunder over the fields, and in many places of the town are fine stone arched vaults for merchants' goods, in which the weavers now work; and many ruinous materials of ancient buildings, so buried, that the streets have been turned into corn-fields, and the plow goes over the first floors of houses.

(*b*) The common thread used by the sempstresses soon becomes rotten, and breaks in the working, unless it is carefully kept from the air.

every article necessary for the dress of the rich or poor of either sex is as handsome, as good in its kind, if not better; as sumptuous, rich, and elegant; and what would render it still more acceptable to many, may be made as expensive as any in France, etc., can produce? Would the Court set the example, nothing but the produce of English manufactories would be worn in the kingdom.

"Much is due to the successful endeavours of the society to which you belong; the acting members have all along discovered a spirit of patriotism that is truly laudable, and will doubtless be of the greatest benefit, as well to the present race of our countrymen as to our posterity.

"You have not, among your readers and correspondents, one who wishes more that your collection may meet with the success it merits than,

Gentlemen,
Your humble servant,
October 6, 1763. A MAN OF SUSSEX."

Mention is made in the above letter of the spinning and weaving being performed in stone vaults. In Cambrai this operation was conducted in damp cellars. When the Huguenots were expelled from France they carried with them many and important industries, leaving France the poorer, and enriching the countries of their adoption. The general linen trade may be mentioned as one of the industries which particularly benefited Ireland. But we cannot trace any important introduction, into any country where the Huguenots found asylum, of the cambric trade of Cambrai, or the fine lawn trade of St. Quentin. In every country where attempts were made to introduce these paying industries there was signal failure. This was particularly emphasised in Ireland, where Louis Crommelin did his utmost, backed up by the Linen Board, to encourage fine spinning and weaving. Scotland's attempts were equally futile, as were England's, so it was with Germany, and to some extent with Holland and even Russia. The spinning of these extremely fine yarns and the weaving of them into cloth seem to have been bred in the French people, and the industry remains amongst them till to-day. Valenciennes, St. Hilaire, Cambrai, and many surrounding villages ply this trade. The following recent letter from a gentleman who visited St. Hilaire, at the writer's request, gives some details of this centuries-old industry at the present time.

> "SIR,
>
> "Your letter to hand this morning. I went to St. Hilaire yesterday, as this will probably be my last visit to these parts this year.
>
> "I saw M. Lorriaux-Aublin, Père, maker of handspun batistes and linen (who was pointed out to me as one of the leading men in this line), and he gave me information which, if vague and incomplete, may possibly be better than nothing.
>
> (1) "In these villages (St. Hilaire, Quievy, etc., etc.) almost every cottage is built with the characteristic large-windowed basement which serves as a weaver's workshop. When trade is brisk, the men betake themselves to the atelier; when it is slack (or harvest, etc., comes on), they turn their attention to agriculture. Under these special circumstances, it is a delicate matter to estimate the number of 'hands.' There may be 2,000 to 3,000 men who have looms, but probably it is very seldom that more than 1,000 or 1,500 are working at one time. I could not learn if the number increased or decreased of late years; my informant—an aged man—said 'it had always been about the same'; the industry has, it appears, been carried on here for centuries.
>
> (2) "M. Lorriaux makes materials of from 14 to 28 threads per 'loupe' of four millimetres. Two samples enclosed. I do not know the technical terms of the English linen trade, but the 'loupe' is the tiny, powerful, magnifying glass with which you will be familiar.
>
> (3) "He makes linens, batistes, etc. These are principally employed for ladies' underwear, handkerchiefs, etc., but also for dresses (linen).
>
> (4) "The goods are exported to some extent, and some go to England. But this business is usually carried on through wholesale houses in Cambrai and Valenciennes."

Although we have complete evidence that the extremely fine manufacture of France in cambrics (batiste) and lawns never succeeded to any appreciable extent in those countries where its introduction was attempted under the auspices of the Huguenot refugees, we have no evidence that, after their expulsion, it continued prosperous in France. Probably the industry sustained a set-back which took many years to adjust. Unfortunately, we are unable to ascertain from French statistics anything of the extent and volume of the linen trade in that country. We have tried all most likely sources, even using the influence of the Foreign Office through the Department of Agriculture in Ireland, and we are therefore obliged to fall back upon statistical records of other countries to gain some slight knowledge

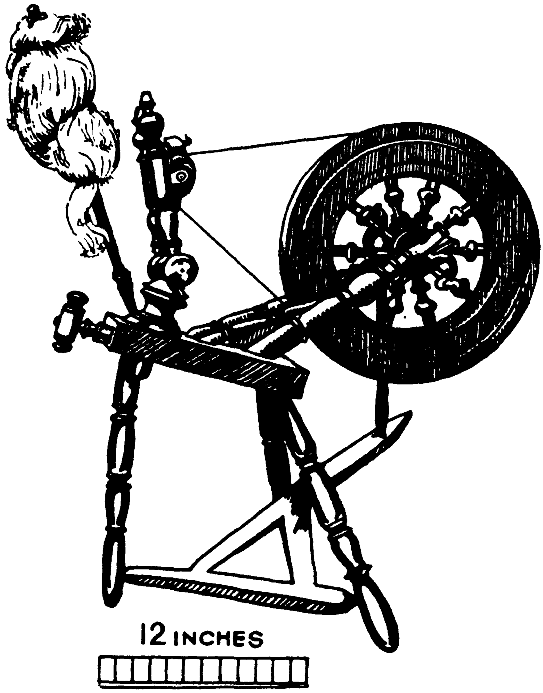


Fig. 26.

A wheel wholly of the Dutch type, and in use to-day amongst the peasant women in Normandy and Brittany purely for domestic purposes.

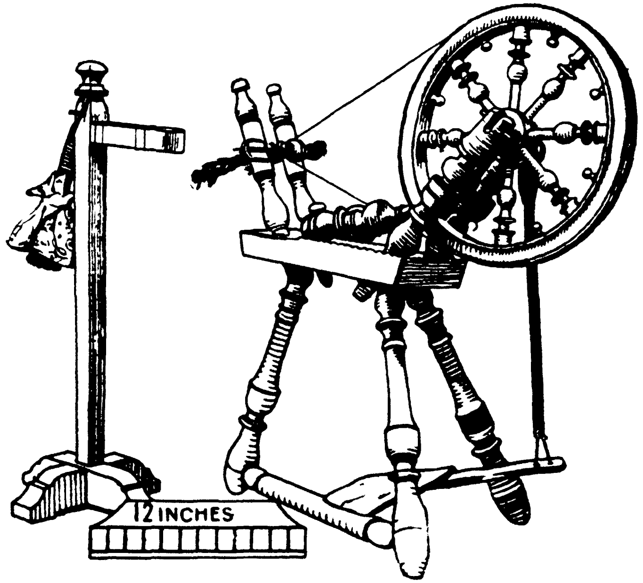


FIG. 27. SPINNING-WHEEL AND DISTAFF STAND AND BRUSH, FROM THE CAMBRAI DISTRICT.

Extensively used at the present time for producing yarns commercially of a greater degree of fineness than can possibly be produced in spinning-mills. For lace purposes, fine cambric handkerchiefs, and body linen, this class of wheel is used, the women working in cellars, where the stillness and humidity or the air conduce to help the production of the exceedingly fine yarn. It will be noticed that the "uprights" in the two Picardy wheels (pages 332 and 333) are nearly vertical, and a strut or stay is used to give support to them.

of the imports and exports of linen and fibres to and from France. In such reports details of the linen are seldom given. For example, we find, in English records, that in the years 1686–7–8 there were annually imported from France into England linens to the value of £700,000 on an average. The year 1685 was that in which the Edict of Nantes was revoked. There is no mention in the English Custom House records of the qualities of linens thus exported from France to England, so we are unable to state whether lawns and cambrics were included, but the amount shows activity in the French linen trade during the three years immediately succeeding the expulsion of the Huguenots. We are unable to determine the amount of linen exports from France to England during the years preceding the three mentioned, it being purely clandestine. In the year 1678 French merchandise was prohibited to be imported into England. This prohibition was, by the influence of James II., repealed, but the enormous inundation of French goods caused the revocation of the James II. Act, in 1686.

In the middle of the seventeenth century English fashions showed a preference for French-made goods. This state of affairs was influenced by Charles II., who received moneys and subsidies from the French King, in return for which he encouraged the use of French merchandise in England, while France at the same period placed prohibitive duties on English woollens. At that time, says *The British Merchant*, "we were in a manner totally supplied by French linens, besides their wines, brandies, paper, etc." At this and later periods France must have been a linen-manufacturing country of repute. Unfortunately, our information on the subject is meagre. The want of records shows that France was not a commercial country, that is, did not buy and sell to any great extent. She subsisted largely on her own products, bought for consumption what she did not produce, and sold any overplus of her own manufacture. Anderson gives some slight account of France's linen industry during the eighteenth century. Abbeville was famous for its manufacture of linen and sail-cloth, Auvergne for fine thread, Cambrai for cambrics, and St. Quentin for lawns. In French Flanders, containing the city of Lille, a great trade in linens was carried on. Lille at that time was so fine a city as to be termed Little Paris. The whole province of Artois had considerable linen manufacture. Valenciennes and Calais carried on a considerable trade in flax; Troyes had a trade in linen and canvas, and in flax and hemp; in Burgundy and in Normandy also there were dealings in hemp. Caen, the second town in Normandy, was celebrated for fine linen, which was also manufactured in other smaller towns in the province. Mortagne had considerable manufactures of coarse linens. We see from these records that the linen trade was spread over a considerable part of France during the eighteenth century. France exported to Spain at that time all sorts of linens. This particular trade is mentioned in the Spanish and Portuguese section of this work, and need not be repeated here. There were instances during the eighteenth century where French goods, especially linens, were excluded from the markets of Britain. The French resolutely refused to take British woollens in return, and, as a consequence, Great Britain encouraged the import of linens from those countries willing to make the proper exchange. From an inquiry into the Revenue, Credit, and Commerce of France, published in 1742, we find the following: "Lost to France in linen, canvas, and sail-cloth, to the amount of £700,000 per annum and upwards; but since high duties were laid on all French goods, these are either manufactured in Britain and Ireland, or imported from Holland, Germany, and Russia, where our woollen goods are taken in return, and whether cambrics be included in it or not does not appear. However, allowing for cambrics, still imported, £200,000 per annum, which, to be sure, is as much as the prime cost of them comes to, then the difference to the loss of France is £500,000." The above statement shows that France was in an excellent position to manufacture and export linens to Britain in competition with other continental countries, duties being equal. It also points out that she was the only cambric-producing country—cambrics being still permitted exportation to Great Britain, for the very natural reason that they could not be procured elsewhere. From Huet's *View of the Dutch Trade*, written about 1702, we find a large trade was centred about Lille, consisting chiefly of Toiles batistes and Barnacons or coarse Camlets. The trade of the Dutch with France was very considerable, Holland at this period supplying France with all sorts of linen cloth, taking probably, in return, the finer counts of France. From a return taken out of the Customs House registers of France, one of the few returns we are able to trace, there was exported, in the year 1659, linen from Normandy and Brittany to the value of 5,000,000 livres. From Huet we quote the following: "The linen brought into Spain by foreigners ever was looked on as the most considerable article of that trade. By reason of its vast consumption, both in Spain and America, the French furnished the Spaniard a long time with this commodity. I believe I should not exceed the truth by affirming that this only article of the French commerce amounted every year to about eight millions of livres." Further, Huet remarks that the foreign commodities most proper for Holland are French linens made in Brittany, silk stuffs, hats, etc. De Witt, in his *State of Holland,* remarks as to France: "Formerly that country subsisted wholly by tillage, but since the reign of Henry IV. the weaving of linen, silk, and wool had so greatly improved that the French can supply others with manufactured stuffs." Amongst other articles exported out of France to foreign parts, especially to Holland at the time (middle of seventeenth century), is mentioned linen sail-cloth made in Brittany and Normandy, to the value of upwards of five million florins. Thus we see at this date that Holland, one of the largest commercial and trading countries in Europe, purchased linens largely from France, which goods were manufactured in competition with Flanders and Germany, where wages conditions were very favourable. Regarding France's imports of fibres and linens for home consumption we have little information; what is at our disposal is culled chiefly from Oddy's *European Commerce.* We find that in 1802 there was exported from Archangel as follows:—

	Hemp. poods.	Flax. poods.	Sail-cloth. pieces.	Ravenduck. pieces.
To Bordeaux ...	1,000	100	60	100
To Marseilles ...	278	—	—	—

And from St. Petersburg there were exported to France, according to the Custom House books at St. Petersburg, ships and goods as per table on opposite page.

The above tables appear in the statement of Russian exports in this work, and are here inserted for convenience of reference. There were certain towns in France, not properly Hansa towns, but joined rather in alliance than confederacy with the Hanseatic league. These were Dunkirk, Calais, Rouen, Bordeaux, St. Malo, Bayonne, and Marseilles. Linens shipped to these towns from Baltic or North Sea ports were destined exclusively for French consumption. There is little recorded, however, of France's trade with the north. When

STATE OF THE EXPORTS FROM PETERSBURG TO FRANCE, BY THE CUSTOM HOUSE BOOKS AT PETERSBURG, FROM 1772 TO 1803.

(From *European Commerce*, by J. Jepson Oddy, London, 1805).

ARTICLES.		YEARS.															
		1772	1773	1782	1783	1784	1785	1786	1787	1788	1789	1790	1791	1792	1793	1802	1803
IIPS	—	46	80	81	15	30	39	26	19	66	61	55	70	37	All French manufactures and produce prohibited, and all intercourse with that country, by Ukase, March, 1793	1	13
mp, clean ...	pds.	147994	211208	285891	24789	57593	89494	90695	60697	252643	81257	164337	261269	114208		—	48288
outshot ...	,,	24881	86411	130665	29225	38867	73931	15625	5323	75268	84583	26040	32112	31694		—	2032
half-clean...	,,	19652	56256	103865	8829	42323	28621	5702	17003	70076	87196	29727	42212	40569		—	—
ax, 12-head ...	,,	677	2664	641	1114	297	14100	1911	111	38	499	44	75	130		—	—
9 & 6-head ...	,,	1014	1607	376	—	—	69	7116	60	—	1749	—	—	35		—	—
ms.	pcs.	—	68	—	10	6	11	—	150	1394	608	7	642	—		—	—
venducks ...	,,	4150	147	617	28	170	120	160	203	351	316	644	1523	108		—	—
il-cloth	,,	1495	1890	2149	1143	2184	1184	1820	1364	1838	2424	6191	3500	31		—	—
mp Codille ...	pds.	4197	3172	13115	3003	5877	—	1119	—	3172	—	12945	—	2776		—	—
rdage	,,	1111	717	3723	937	4691	2262	343	1186	2158	4009	885	10310	900		—	—

driven out of the Baltic trade (except what little was carried through the Holstein Canal), she wisely produced her raw material at home, and established manufactures of linens. She thus became independent of any external supplies. (Oddy, page 397.)

Reference has been made to the fine lawn trade of Picardy, and to that of cambrics in Cambrai and district. If the reader will turn to page 34, he will find a description of the wheel Crommelin desired to introduce into Ireland. We depict here two of these Picardy wheels (Figs. 28 and 29) exactly as described in Crommelin's Essay on the Hempen and Flaxen Manufactures, except that wheel Fig. 29 has the addition of a treadle. We need not repeat here an account of the properties of these wheels so fully set out on the page indicated, but would merely point out what might be considered a curious and useless survival in two of the French wheels illustrated in this work. In the two Picardy wheels it will be noticed that the

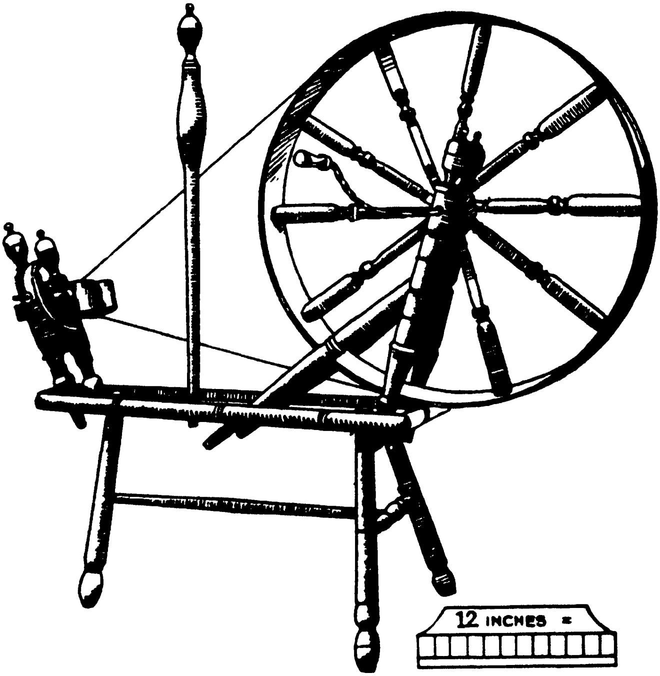


FIG. 28. SPINNING-WHEEL FROM PICARDY.

uprights, in bearings on which the actual wheel runs, are nearly vertical, so that a strut or stay is necessary for each to give adequate support. In the Cambrai and Normandy spinning-wheels the uprights are placed at angles sufficient to bear the strain, yet the struts or stays still survive, though obviously useless.

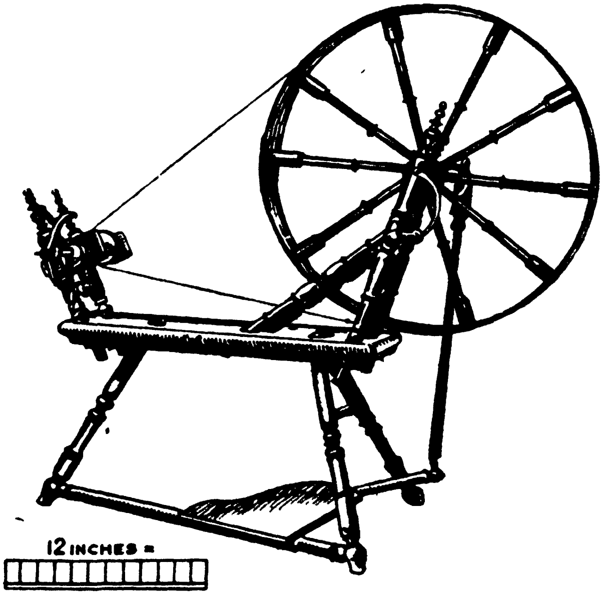


FIG. 29. SPINNING-WHEEL FROM PICARDY.

CHAPTER XL.

De Girard's Inventions

In the English section (page 261) we have given an account of Kay's invention of wet-spinning. We purpose here to treat of Philippe de Girard's claim to the same, indicated in his English patent A.D. 1814 (No. 3855), taken out in the name of Horace Hall. We cannot preface any remarks on this subject better than by quoting Mr. J. G. Marshall's lecture to the British Association in 1858, on the History of Flax Spinning in England, especially as developed in the town of Leeds. As Mr. Marshall was intimately associated with the lengthened trials (Kay *v.* Marshall) over this matter of wet-spinning, his remarks on the subject of de Girard's claim will be appreciated. They are as follow :—

> " We now come to the introduction of a very important improvement in the spinning process as applied to flax. I have adverted to the gummy matter which, in raw flax, unites or glues together the fine ultimate fibres into much coarser ones, and which it is the object of the hackling process to sub-divide by mechanical means. The division so effected can only be imperfect, and it was found that the fibres could be more completely separated by saturating the material with water, which dissolves or softens the gummy matter, in the spinning machine itself, when in the actual process of being drawn out and spun.
>
> " There is a somewhat singular history attached to the origin and progress of this invention of wet-spinning. During the great war between England and the first Napoleon, it became a leading object of his policy to exclude English manufactures,

> and to encourage those of France. England had taken a decided lead in the cotton manufacture, but at that time, about the beginning of the present century, little had been done in England in applying machines to the linen trade. The linen trade of France has always been a very important branch of industry, linen being more extensively used by the bulk of the population in France than in England. Napoleon therefore wished, by encouraging the application of machinery to the linen trade in France, to make it a rival to the cotton trade of England. He offered a reward of a million francs for the successful application of machinery to the spinning of flax. This inducement brought forward Girard, who produced designs for a series of machines for preparing and spinning flax, of great ingenuity and originality, including this plan of wet-spinning. But what was the result so far as the linen trade of France was concerned? Girard could find no one in France with the enterprise and capital requisite to perfect and apply his invention. He had to come to England—he had to come to the town of Leeds. A patent was taken out for his inventions in England, especially for the wet-spinning, under the name of Hall, in 1814, and was taken up by Robert Busk, of Leeds. Mr. Busk put up a considerable quantity of machinery on this plan, and produced by it yarn much finer than that usually spun. But he kept the new plan to himself; it was not tried by others; the improvements in the preparatory processes were not then sufficiently advanced to make fine-spinning advantageous; the plan did not answer commercially, and was given up and forgotten."

From the above remarks by such an authority as Marshall, it would seem clear that de Girard was, without doubt, the first to conceive the idea of wet-spinning. Marshall's statements are in no way prejudiced, for as defendant in trials in Kay *v.* Marshall there was no dispute as to the validity of Kay's maceration or wet-spinning process, but simply to his claim to bring the spinning-frame rollers to within a given distance of each other. When Kay's invention was successful, and adopted by all the leading flax-spinners, de Girard wrote the following letter to *The Manchester Guardian*:—

IMPROVED FLAX-SPINNING.

To the Editor of *The Manchester Guardian*.

"Sir,

"I beg to submit to the flax-spinners of this country a few observations, which, I believe, will be highly interesting to them, or, at least, will correct a misrepresentation that has been made, and render the merit of an important improvement to the real inventor.

" A few months ago a gentleman of the name of Kay excited a strong sensation in the trade by announcing a new method of spinning flax, by which much finer and better yarn was produced than by any other process previously adopted. He announced this invention not only as new, but as his own ; the results of his experiments were published in many provincial and London papers ; and he granted to several flax-spinners the right of using his invention, for which he obtained a patent.

" The public will now hear, perhaps with some astonishment, that all this noise was made for a discovery long since published on the Continent, and even patented in England twelve years ago.

" The new process of spinning announced by Mr. Kay is the same which I invented fourteen years since, and which is established with great success in France, Saxony, and Germany. A patent was taken out in England in the month of May, 1815, by my partners in Paris, Messrs. Cachard & Lanthois, in the name of Mr. Horace Hall.

" In this patent is clearly described the principle of reducing the flax to its elementary fibres, by dissolving or moistening the glutinous matter which unites them. The merit of this discovery belongs also to me ; and the right of using it in England to Mr. Horace Hall, if to any; but certainly neither of them to Mr. Kay.

" This gentleman proposes a solution of potash for the separation of the fibres. This was my first process, specified in my patent in France with another much preferable to this. I have spoken of the solutions of potash, soda, or soap, in my patent, only to prevent the imitators from invading my rights by resorting to the use of those solutions, but a much better method will be found in my explanation and drawing attached to the patent of Mr. Horace Hall.

" The yarn produced from my flax-spinning manufactory can be seen on applying to me, or got from my manufactory at Hirtenberg, near Vienna ; or at that of Messrs. Kraus & Brother, at Chemnitz, in Saxony, who several years ago adopted my principle of spinning. The superiority of my process will be evident, when it is stated that we spin commonly 120 leas to the pound, while the first spinners in Leeds do not exceed 42, except as experiments.

" Why the spinners of Leeds have not taken notice of this important part of my inventions, whilst they adopted, with great advantage, the other parts of them described in the same patent of Mr. Horace Hall, is difficult to explain on any other ground than that, owing to its extreme difference from the usual process, they doubted of its efficacy ; or thought that such a decomposition as it causes would alter the strength of the yarn, which is by no means the case; on the contrary, my yarn has always more strength now than the common yarn, because the fibres are more perfectly parallel together.

"The part of my invention that I alluded to, and which has given the flax-spinners of England the means of making the first improvements in their old process, was this, of reducing the flax into roving by drawing it through endless chains of combs, which the flax-spinners have adopted these ten years, and which seems to be the only method for making a regular roving of this substance. I am glad that they are now disposed to adopt the second and important part of my invention, and cannot do less than thank Mr. Kay for having called their attention to it.

"Since the taking out of this patent, I have made many further improvements in my method of spinning; among others I have invented a machine for combing the flax, much superior to those now used in Leeds; also another for making the first slivers, which are made in Leeds by hand, etc., etc.

"I shall be ready to afford full information to any persons requiring it on these new improvements, by applying to me, at the address hereafter.

Your most obedient servant,

Care of Messrs. HARMAN & CO., LONDON. PH. DE GIRARD."

The above appeared in *The Manchester Guardian*, 2nd December, 1826.

Regarding the portion of de Girard's letter which refers to gill spinning, or reducing the flax into roving by drawing it through endless chains or combs, it certainly does seem extraordinary that this method was not adopted by the English flax-spinners long before, especially (see English section) as the invention was patented in England years before de Girard's introduction of the same principle. Coming to de Girard's wet-spinning process, there seems no doubt whatever that in his fertile brain the idea of separating the ultimate fibres of flax and hemp was conceived. The accompanying drawing and explanation from his specification (page 338) is perfect evidence.

But the system adopted was unsuccessful. De Girard simply wetted the fibres in a preparatory stage by drawing them through rollers, the lower half of which revolved in a trough of water containing a solution of soap or other substance capable of loosening the gum which held the elementary fibres together. This, no doubt, in part succeeded, as he was enabled to spin finer yarns with something like a four-inch reach. On the other hand, Kay, who had experimented

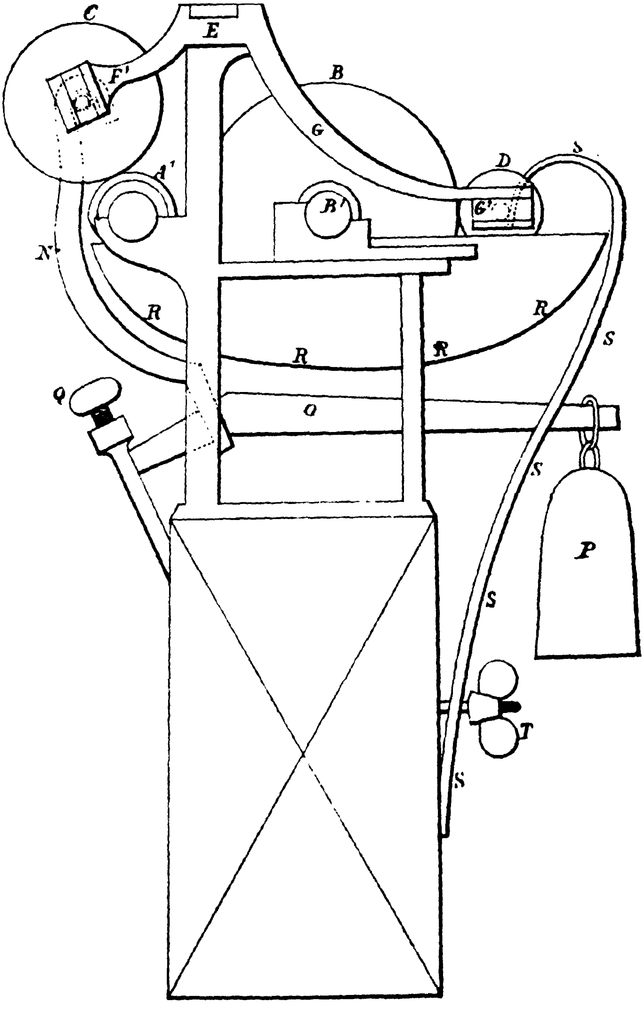


Fig. 30.

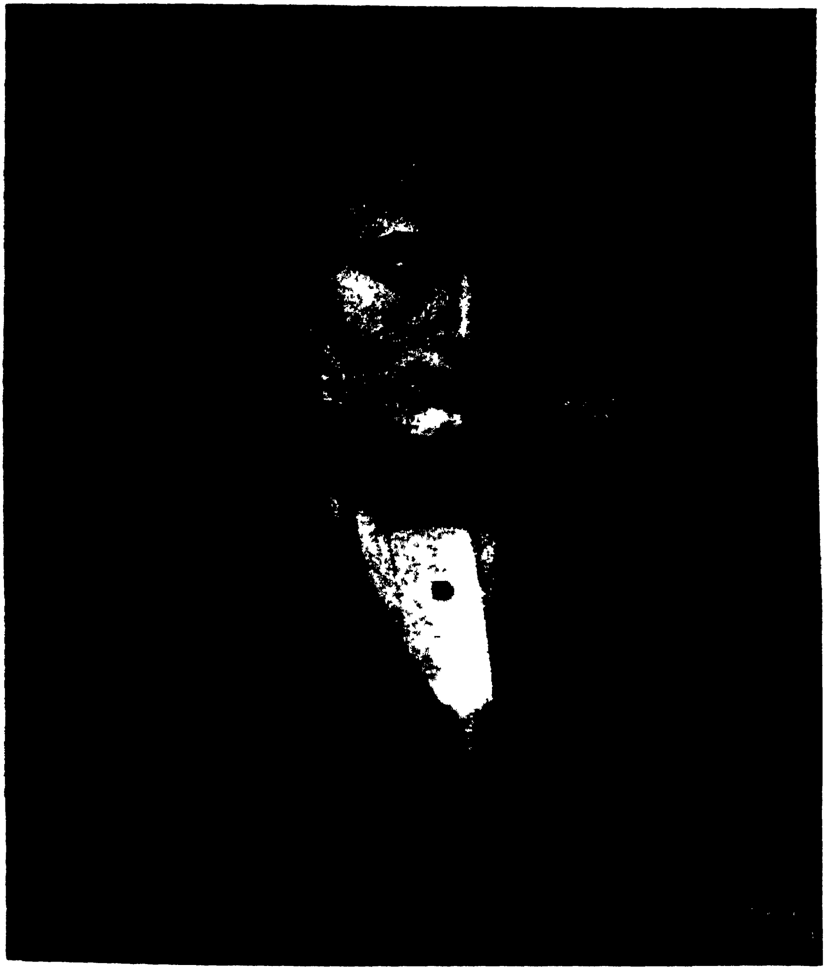
"This is a side view, showing R, R, R, R, a trough holding a solution of soap, or other solution fit for the purpose, in which the lower surfaces of the rollers A^1, B, and D are plunged, and the hemp or flax, or substance containing fibre, becoming wetted therewith, is made more lax, and the fibres thereof slip past each other with greater ease." (*From the specification of de Girard's patent.*)

for years, found that thorough maceration or steeping of the rove in water for six hours was necessary so to loosen the gummy matter as to enable all the ultimate fibres to become capable of being drawn individually, and by this means he produced infinitely finer or more level yarns at a reach of 2½ inches. Kay's patent was allowed by the Courts as being no infringement, and the subsequent system of drawing the dry rove through hot water, which had the same effect as macerating in cold water, did in no means interfere with the validity of his invention.

Philippe de Girard, whose portrait, from an oil painting in Girardoff, in Poland, is here reproduced, was born in Lourmarin, Vaucluse, on 1st February, 1775.

> "He is chiefly known in connection with flax-spinning machinery, Napoleon having, in 1810, decreed a reward of one million francs to the inventor of the best machine for spinning flax. Girard succeeded in producing what was required, but he never received the promised reward, although in 1853, after his death, a comparatively small pension was voted to his heirs, and having relied on the money to pay the expenses of his invention he got into serious financial difficulties. He was obliged, in 1815, to abandon the flax-mills he had established in France, and, at the invitation of the Emperor of Austria, founded a flax-mill and a factory for his machines at Hirtenberg. In 1825, at the invitation of the Emperor Alexander I. of Russia, he went to Poland and erected, near Warsaw, a flax manufactory, round which grew up a village which received the name of Girardoff. In 1818, he built a steamer to run on the Danube. He did not return to Paris till 1844, where he still found some of his old creditors ready to press their claims, and he died in that city on the 26th August, 1845. He was also the author of numerous minor inventions."

The above is from the *Encyclopædia Britannica*, 11th edition, volume 12, page 45. Amongst de Girard's other inventions we can name a tubular boiler for steam-engines, an achromatic telescope, in which the lens was replaced by a fluid, a rotary steam-engine, a steam cannon, and an apparatus for making beet sugar.



PHILIPPE DE GIRARD

THE LOW COUNTRIES

BELGIUM & HOLLAND

CHAPTER XLI.

The Hansa Trade

The extensive and increasing undertakings of the Hanseatic League during the middle ages led to many ramifications. None seemed more important to that body than the establishment of a central depôt for the reception of goods from all parts of Europe, and the more convenient re-distribution of them. From the Baltic the Hansa towns sent naval stores, iron, copper, corn, flax, hemp, timber, etc.; quantities of these articles found their ultimate market in the towns of the Mediterranean. A voyage from the Baltic to the Mediterranean and back in one summer was considered difficult and dangerous. The mariner's compass, though known, was little used, and navigators were compelled to keep the coast in sight, which, of necessity, entailed a much longer voyage. Even after the introduction of the compass there was barely time to get back while the Baltic was still ice-free. So about the middle of the thirteenth century the Hanseatic merchants chose Bruges, in Flanders, as a convenient half-way house, and there they established a central depôt, to which was carried the produce of the Baltic and the North Sea, the wool, lead, and tin of England, the wines and fruits of France. The ships of Florence, Venice, Pisa, Genoa, etc., brought the products of the Mediterranean Sea, such as the wines, spices, drugs, cotton, etc., of the

Levant, and of Spain and Italy. Of the many ports available none seemed more suitable than Bruges, and this town was chosen primarily on account of the extensive and long-established manufactures of woollen and linen in Flanders; these commodities being of necessity to all nations, were conveniently on the spot ready for exportation. We have at disposal little information regarding this early linen manufacture in Flanders. MacPherson, writing of the year 1253, notices some appearance of linen weaving in Britain, but the quantity was not great and the fabric coarse, the greatest quantity, and especially of the best fabrics, being procured from Flanders, where the linen manufacture was carried to perfection with native materials of the best quality. Writing of the year 1416, he says: "It appears from the rolls of the King's Wardrobe that the greatest part of the linen used in England, especially by those of the higher ranks, was imported, and was chiefly of the fabrics of Rennes and Champagne in France, and of Flanders and Brabant in the Netherlands." Large quantities of fine linen were used in England for surplices and altar cloths, which presumably came from Flanders; and we find in the inventory of Cardinal Wolsey's chattels mention of quantities of fine linen and very little woollen. The woollen goods, being manufactured at home, were easily available; the fine linen, being of foreign origin, was only obtainable at irregular intervals, and therefore a considerable stock was necessary. We have no definite information that Flanders supplied all, or part, of these fine linen goods, but we can feel assured that her trade expanded under the influence of the Hanseatic League. That important Corporation began, according to some authorities, in the year 1169 by bringing into confederation twelve or more towns on the Baltic shore; later, other towns incorporated, and the whole divided into four classes—Lübeck being at the head of the first and also of the whole Union. According to Anderson's *History of Commerce*, published in 1787, the first class contained the Vandalic and Pomeranian towns. Cologne was head of the second class, which comprehended the towns of the counties of Cleves, Overyssel, Gelderland, Mark, and Westphalia. Brunswick was head of the third class, comprehending the cities of Saxony, while Dantzic was the chief of the fourth class, which included the towns of Prussia and Livonia. In 1252 commerce flourished so greatly in the towns of Flanders that members of the Hanseatic League resorted thither for purposes of trade, but the exactions and duties laid on foreigners made such trading unprofitable. They made an appeal to Margaret, Countess of Flanders, to relax the duties, which appeal was successful, and the great commercial and manufacturing prosperity of Flanders being thus opened to the League was, no doubt, their reason, in 1262, for creating Bruges their central depôt. We outline thus briefly some of the ramifications of the Hanseatic League to suggest thought of the powerful influence it would exercise on the trade and manufacture of Flanders, and how the linen industry would expand when all the various countries included in the mercantile transactions of the League opened their doors. Until this time, and even later, we have but fragmentary evidences of the state of the linen industry in Flanders. There is evidence to show that, in comparison with most other countries, the industry was very considerable. For nearly 300 years Bruges was the entrepôt of the Hanseatic League. Helen Zimmern, in her history of the Hansa towns, says: "It was at Bruges that the vast ramifications of Flemish and Hanseatic trade were united. Fifteen different foreign nations held established depôts in the city, which was the very artery of commerce. Sixty-eight Flemish trade guilds flourished within its walls. It communicated with the sea by means of a canal and a not too distant harbour. Extensive privileges had been accorded to it by various native princes. The inhabitants were proud, rich, and independent. With these men commerce had already become a science, and various peoples who had till then the most elementary notions on the point, came to the Netherlands to instruct themselves. It is surprising to read that as early as 1310 they had instituted at Bruges an insurance office, and that the chief principles affecting exchange of values were already understood."

Towards the close of the fourteenth century Bruges seems to have attained the meridian glory of its commerce and wealth. According to Anderson, the great linen manufacture, as well as that of woollen, in Flanders and Brabant contributed, in 1420, very much to the foreign shipping. The author of *Annales Flandriae* states that, in 1468, so immense was the commerce of the famous city of Bruges that there were seen by many persons no fewer than one hundred and fifty merchant ships arriving at one time at the port of Sluys, which was the haven of Bruges. In 1471, Bruges had risen to such importance that the city was declared the sole staple of the Hansa trade. Her inhabitants numbered 200,000 souls, and her Bourse regulated the rate of exchange in Europe. But soon this great commercial city was to fall. The year 1488 saw the Emperor Frederick III. invade the territory of Bruges and blockade the harbour of Sluys to avenge the imprisonment of his son, the Archduke Maximilian. From this time forward Bruges rapidly declined, and Flanders lost a great part of her industry. Eventually the League selected Antwerp for a depôt, a great number of the Bruges merchants having already carried their activities to that city. Before the fall of Bruges, as we have noted already, very little evidence of the state of the linen trade in Flanders and Brabant is recorded. We find, however, in Anderson's *History of Commerce*, that in Louvain, which in the fourteenth century was the first city of Brabant, exceeding Brussels in rank, there were noble manufacturers of woollen and linen employing upwards of one hundred and fifty thousand workmen, though probably not all within its walls. In 1382 there was an insurrection amongst the weavers, for which many were punished, and the rest withdrew to England and other parts. According to the same authority, Flanders was the earliest of any country outside the Mediterranean border lands that entered into the manufacture of linen cloth—a position which she held for several centuries. Ghent gave its name to those linens called Ghentings. From the town of Ypres came the word diaper (Toile d'Ypres). Louis Guicciardini, who flourished in the sixteenth century, gives in his *Description of the Netherlands* some details of the linen trade there in his time. In 1560, Antwerp was at the height of its prosperity. Writing of that city, in the year above quoted, Guicciardini says :—

> " Besides the natives and the French, who are here very numerous, there are six principal foreign nations who reside at Antwerp, both in war and peace, making above 1,000 merchants, including factors and servants; viz., 1st, Germans ; 2nd, Danes and Easterlings, peoples from the ports on the south shores of the Baltic, from Denmark to Livonia ; 3rd, Italians ; 4th, Spaniards ; 5th, English ; and 6th, Portuguese. Of these six nations, the Spaniards are the most numerous. They meet twice a day, in the mornings and evenings, one hour each time, at the English Bourse, where, by their interpreters and brokers, they buy and sell all kinds of merchandise. Thence they go to the New Bourse, or principal exchange, where for an hour each time they transact all matters relating to bills of exchange with the above six nations, and with France ; and also for deposit (the loan of money) at interest, which is usually 12 per cent., for such was the interest paid by Charles V., and his son Philip II., to the merchants here, which high interest brought the nobility to lend their money

> secretly (the laws of nobility forbidding that practice), and made many lazy merchants likewise deal in this way, though such high interest was a great grievance to the poor, as well as a great obstruction to commerce."

Guicciardini, continuing, gives some details of the general trading between Antwerp and the various European states. We omit here any mention of merchandise except linens.

To Ancona great quantities of linens; to Boulogne and Venice, to Naples vast quantities of linens; linens to Sicily and Florence and Genoa, and vast quantities to Milan. An infinite quantity to Germany; to Denmark, Norway, Sweden, Eastland, Livonia, and Poland vast quantities, and great quantities of fine linens to France, receiving in return strong linens of Brittany and Normandy in immense quantities. To England and Scotland fine and coarse linens; to Spain similar qualities in great variety, and linens also to Barbary. At Bois-le-Duc, in Brabant, twenty thousand pieces of linen, worth on an average ten crowns a piece, were annually made. At Nivelle there were great quantities of very fine cambric, as also at Cambrai, from which town that fine manufacture derived its name. At Courtrai was made fine table linen; at Tiel linen cloth and buckrams; at Ghent the cloth called from it "Ghenting," in prodigious quantities, and various sorts of fine linens and buckrams.

CHAPTER XLII.

Riches through Refugees

Trade in the Spanish Netherlands was considerably augmented by the immigration of very many Protestant refugees. Large numbers of Calvinists were driven out of France, and settled in those parts of the Low Countries adjacent. Lutherans, compelled to leave Germany, settled in the provinces close to the Rhine; and the persecutions of Queen Mary of England forced the Protestants there into Flanders and Brabant. Sir William Temple, writing of these incidents, says: " These accidents and neighbourhoods filled these countries in a small tract of time with swarms of the reformed professors, and the admiration of their zeal, the opinion of their doctrines and piety, the compassion of their sufferings, the infusion of their discontents, or the humour of the age, gained them every day many proselytes in the Low Countries, some among the nobles, many among the villages, but most among the cities whose trade and riches were much increased by these new inhabitants, and whose interests thereby, as well as conversation, drew them on to their favour."

This strongly Protestant element, now settled in the Spanish Netherlands, gave work to the newly-erected Inquisition there, and the constant executions which took place roused the people to something like frenzy, and frequent insurrections occurred. At last Philip II. decided to send 10,000 troops, under the Duke of Alva. When the report of this expedition became known so great was the exodus from the Provinces that, in a few days, over a hundred thousand of the trading population had left, taking with them their money and goods. The persecutions raged with unabated fury, and culminated in the sack of Antwerp, in 1585, by the Prince of Parma. Strada, in his *History of the Low Country Wars*, relates: "That they most miserably plundered the richest port town in all Christendom for three days together, to the value of at least two millions of pistoles, beside an infinite value of rich merchandise and furniture destroyed by fire, etc. Almost three thousand of its inhabitants fell by the sword—fifteen hundred were either burned or trodden to death, and as many drowned in the Scheldt." This horrible act ended the commercial power of the Spanish Netherlands.

One would have thought that the vast number of merchants and manufacturers who now emigrated from these Provinces would have found a ready and congenial asylum in England—already become a world power under Elizabeth. The situation of England as a maritime country, her harbours and considerable mercantile fleet, would seem an inducement to a people who traded extensively throughout Europe. But at that time, in England, foreigners and their descendants were compelled to pay twice the taxes of the native English. The trade guilds or societies excluded all foreigners from engaging in any industry, either as partners or owners, except at such as the English were unacquainted with, so that no occupations were open to the refugees except in the manufacture of serges, damasks, stockings, and some trades of minor importance. None of the Hansa towns seemed attractive to a people desirous of carrying on their industries untrammelled and unimpeded by restrictions, or by obedience to the Hansa laws; so the safest and surest anchorage was found in Holland, although this country was otherwise less suited for their purpose. Holland was now a republic under the Prince of Orange, and with seven provinces united under her banner had resisted, with success, the power of Spain. Huet, in his *View of the Dutch Trade*, written about 1702, relates: "The persecutions which Spain renewed, with too great severity, in several places against those who had embraced the new opinions, peopled the United Provinces with a world of excellent artisans, who set up their several new manufactures, and brought those they had already to great perfection. The civil wars that lasted so long in France, then in Germany, and last of all in England, augmented considerably the inhabitants of the United Provinces, and the wars which broke out in the year 1634 in the Low Countries between France and Spain caused, likewise, great numbers of merchants and workmen to go into Holland; for the richest villages of Flanders, Brabant, and the country beyond the Meuse being ruined by winter quartering of soldiers, the inhabitants themselves left them, because the most trading towns had lost all their commerce, and the carriage of goods was liable to such dangers. All this caused not only the towns of Holland to grow extraordinarily populous, but doubly increased their trade, as having a prodigious vent for almost all sorts of their manufactures and other commodities during the continuance of that war. But, after all, nothing has increased the inhabitants of Holland and their manufactures so much as the French Protestants, who were almost all of them merchants or artisans, and came thither about twenty or thirty years since. To conclude, it must be acknowledged for incontestable truth that whenever trade is clogged or constrained in any Government, it will retire to others where it may have greater safety and be more favourably used, which happiness, at that time, it could nowhere find so well as in Holland."

Holland at this time had scarcely any manufacture. Goldsmith said of the Dutchman that he had " scooped out an empire " from the ocean, and certainly one of her largest industries was derived from the ocean, namely, the herring fishery. Holland, before the revolt from Spain, possessed over 600 fishing smacks, from 100 to 200 tons each. The curing of the fish occupied large numbers of the population, but at this time the Dutch were carrying on a great trade, principally with Scandinavia, the Baltic Provinces and Poland, bringing from these countries grain, chiefly rye. They had at that time more than 800 first-class ships, suitable to this carrying trade, from 200 to 700 tons burden. Amsterdam, as a distributing centre, was next to Antwerp in importance. In such manner Holland was prepared for an export trade in manufactured goods. Her political system gave every encouragement to those who brought their manufactures thither. There was no King or Prince to rule despotically. The Prince of Orange, as head of the republic, was but the highest servant of the state. Thus security was assured, and, above all, perfect freedom of religious thought. These advantages were undoubtedly great, but, on the other hand, it must be considered that Holland did not possess, within her bounds, any of those requisites necessary to manufacture, with the exception of clay, from which their Delft ware was made. She had no minerals, and besides butter and cheese little was produced in the country, yet a large manufacture was built up under these conditions—conditions which lasted for several decades. Sir William Temple, then British Ambassador at the Hague, writing about 1672 of the trade of the United Provinces of the Commonwealth, relates: "That no country can be found either in this present age, or upon record of any story, where so vast a trade has been managed, as in the narrow compass of the four maritime Provinces; nay, it is generally esteemed that more shipping belongs to them than does to all the rest of Europe, yet they have no native commodities towards the building or rigging of the smallest vessel; their flax, hemp, pitch, wood, and iron coming all from abroad, as wool does for clothing their men, and corn for feeding them. Nor do I know anything properly of their own growth that is considerable for their own necessary use, or for traffick with their neighbours, besides butter, cheese, and earthenware."

CHAPTER XLIII.

The Dutch as Carriers

Thus we see that, within eighty years from the time of the sack of Antwerp and consequent infusion of great numbers of manufacturing immigrants into Holland, the growth of produce in Holland is not increased; and yet her trade and manufactures grew with great rapidity. To quote again Sir William Temple: "Nor has Holland grown rich by any native commodities, but by force of industry, by improvement and manufacture of all foreign growths; by being the general magazine of Europe, and furnishing all parts with whatever the market wants or invites; and by their seamen being, as they have been properly called, the common carriers of the world."

Holland, growing little of the necessities of life, but procuring them from abroad, had naturally to give in exchange products of her own. Hitherto her great stand-by were the fisheries, cheese and butter, but with the influx of so many from other countries, happily most of them artificers, manufactures of various sorts became absolutely necessary in order that commodities needed might be purchased from abroad. So thus sprang up rapidly a great manufacturing industry in Holland. After the fall of Antwerp, most of the linen weavers and some two-thirds of the damask weavers who emigrated came to Holland and settled, mostly about the town of Haarlem, in which town the linen merchants had chiefly established themselves. Now, although Holland from this time until the decline of her linen trade was one of the most important linen export countries in Europe, her manufactures were never in proportion to the volume of her trade. The cost of living was too high, and taxes were considerably higher than in neighbouring states. Flanders and Brabant could, for example, produce linen yarns and linen cloth at a much lower cost than Holland.

After the fall of Antwerp the Scheldt was effectually blocked by the Dutch, and none of the products of Flanders could get an outlet that way. There were still many traders and manufacturers in Flanders and Brabant who sent their linens to France and Germany by land carriage. This industry continued until, as we have seen, it was destroyed in 1634. To induce these merchants to send their goods to Holland was the desire of that Republic. De Witt, the great Pensionary, in his *Interest of Holland*, writes: "That in Flanders and Brabant, especially in the villages where the manufactures are mostly made, there are but small imposts paid, and in Holland the taxes were very great. They might, therefore, have borne the charge of carrying those goods by land into some French harbours, from whence they might have been transported to any part of the world, and therefore upon good advice we thought it our interest to permit those Flemish manufactures, though wrought by our enemies, to be brought into our country of Holland, charging them with somewhat less duty than they must have been at by going the furthest way about. And thus did those manufactures of foreign countries, by means of immunities from imposts and Halls (trade guilds), greatly improve and flourish in these villages, because they could be made as cheap and cheaper than ours, which from time to time were more and more charged with duties on consumption. Yea, and what is more worthy of admiration, they were charged with convoy money and other taxes upon exportation."

We see that Holland, by a wise policy, drew to herself much of the cheaply produced linen goods of Flanders and Brabant, enabling her to export them at great advantage. Holland, although a linen-manufacturing country to a considerable extent, was not a great yarn producer. After the advent of the Huguenots fairly large quantities of fine yarns were, for a time, spun, and to such perfection that the Dutch wheel was copied in many countries, but the coarser yarns, the staple of the Dutch trade, were mostly provided from abroad, exactly as the English weavers provided their yarns from Ireland.

A certain Andrew Yarranton, writing in 1677, says that the linens

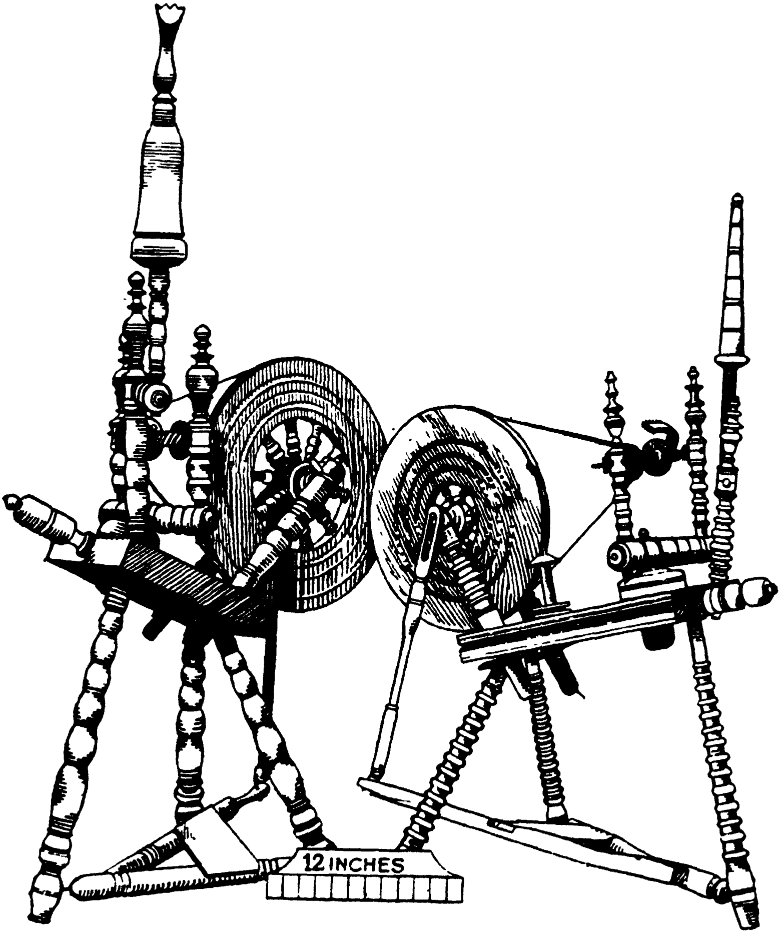


FIG. 31.
VERY OLD DUTCH WHEEL.

FIG. 32.
A MODERN WHEEL FROM FRIESLAND.

In 1724, Richard Hall, of Dublin, made a tour in the Low Countries, and wrote a book on the methods used there in the linen-manufacture. Regarding the spinning-wheels he said: "They are much after the same form with ours in Ireland, called Dutch wheels, only they are made firmer and the rims heavier." The heaviness of the rim will be noticed in this old Dutch wheel (Fig. 31).

It will be noticed from succeeding illustrations that many of the wheels are of this Dutch type (Fig. 32). Holland was the foremost country in Europe in the production of linen goods, and her spinning-wheels were widely copied.

made in Holland, and bleached there, are woven from yarns which come from Germany and Saxony and Bohemia, and other parts thereabouts, brought down the Elbe and Rhine. Yarranton's description of the German Spinning-School is interesting, and will be found in the German section of this work. We have noted in the chapters on the German linen trade that large quantities of yarn were exported from Bohemia to Holland, and that a petition on behalf of the yarn merchants of Silesia was sent to the King asking permission to export to that country, as the upper Silesian yarn was suitable for the Dutch weaving trade. This petition was not granted, as the King was desirous of having all Silesian-spun yarn manufactured in Silesia. In the tables given of linen exports from Silesia to various countries we find that Holland is grouped with England, France, Spain, Portugal, and the West Indies; we have, therefore, no means of arriving at the value received in Holland. Joseph Marshall, known as the Economist, in his *Travels through Holland* in 1768, speaking of the Dutch manufacture, gives some extracts from a very good account then lately published in Holland, and which had not appeared in the English language. The sense of his rather defective translation of matter relating to the linen trade may be given as follows: "The linen-manufacturing centres in the Provinces of Groningen, Friesland, and Overyssel are always fully employed—the manufactories of France, Flanders, and Germany make nothing to equal their productions. The linens which are called Dutch are distinguished as much by the whiteness, the fineness of grain, the equality, and the general goodness, as by being measured by the ell, or by the manner of folding. The most famous bleach-greens in Europe are at Haarlem, giving to their linens the special lustre and fine white that distinguish them; by this they enable the Dutch merchants to appropriate to themselves foreign manufactures which they buy in Westphalia, in the country of Juliers, in Flanders, and in Brabant, and which, being bleached at Haarlem, are offered in commerce under the name of Dutch linens. They take care in their treatment (without the assistance of any compulsory regulation) to avoid giving the linen an artificial length, as we know is done at the bleach-green grounds of Flanders, by rolling them on boards; a lucrative process, but one which degrades the linens by entirely altering their quality. At Haarlem they are turned only by hand, and the ashes used are of the very best quality."

It is clear that practically from the beginning of the linen industry in Holland, until it was wearing to its decline, the import trade was considerable; viz., linens were imported from foreign countries and exported again as of Dutch manufacture, giving a somewhat false idea of the magnitude of the actual manufacture in Holland. A like difficulty of estimating actual manufacture of the country is found in connection with other industries, notably in the case of toys, at one time known in England as Dutch toys, all of which were made in Nuremberg, in Bavaria, and simply merchanted through Holland. There are, unfortunately, no statistics available of Holland's linen production, notwithstanding many inquiries made in Belgium and Holland. Some light, however, is thrown upon the matter in various works written about the time of which we now deal. Monsieur Huet's little book gives some items of interest respecting the imports and exports of linens from and to various countries, but no detailed statistics are noted. Before dealing with these, it is of importance to consider some of the methods resorted to by the prudent Dutch to secure to themselves a most valuable and lucrative European commerce. In the first place the situation of Holland was admirable—two great rivers, the Rhine and the Meuse, terminate in Dutch waters; the former, rising in Switzerland, has a navigable length of over five hundred miles. Of its many affluents two are of commercial importance—the Main, navigable for two hundred miles, and the Moselle with a slightly longer navigation. The Meuse carries traffic through parts of France and Belgium. These rivers, with their smaller tributaries, were natural arteries to the trade of Holland from internal sources. As the Baltic and the North Sea tapped Russia, Poland, Germany, and the Scandinavian countries very freely, for both raw material and manufactured goods, a considerably augmented mercantile marine was necessary if Holland were to become the chief distributing centre for these countries. Shipbuilding was extensively prosecuted in Holland at a date much earlier than that of which we write. It is said that the first successful curing and barrelling of herrings was practised by a Fleming, one William Buerem, who died in 1347. An enormous trade in cured herrings was gradually developed with all accessible European countries for use on fast days. Holland and Flanders were the chief countries engaged in this lucrative trade, and, after the blockade of the Scheldt, that of Flanders was absorbed by Holland. Sir Walter Raleigh says that in the year 1609 the Dutch employed on the coast of England, in this fishery, 3,000 ships and

15,000 men. We mention this merely to show that the building of sea-going vessels was thoroughly established in Holland, although nothing was produced within the country necessary for ship-building. In the seventeenth century, however, the manufacture of sail-cloth and tapes found a home in Holland. De Witt gives some statistics which show that the mercantile fleet of Holland must have been enormous. Raleigh's computation of 1609 is given above. De Witt gives a later estimate. Nine years later his report to King James affirms that the Hollanders fished the coast of Great Britain with no less than 3,000 ships and 50,000 men, and that they employed and sent to sea to transport and sell the fish so taken, and to make returns thereof, 9,000 ships and 150,000 men in addition, and that they had in all no fewer than 20,000 ships at sea. To facilitate a commerce with the Baltic and North Sea a treaty was entered into with the Hansa towns. These towns, as we have seen, had for some centuries engrossed the trade, but, their prosperity beginning to wane, Holland and England applied themselves so earnestly to navigation that the various trading nations courted an alliance with them. a course followed by the Hansa towns, who saw in such alliance a chance to preserve what trade was left to them. The Dutch were equally anxious to form an alliance which would secure to them the advantages of the Northern trade, so in 1631 they signed a treaty with Lübeck, then the chief of the Teutonic Hansa towns, for a free and safe trade to the Baltic. In the following year the most important of the other Hansa towns followed the example of Lübeck, and, according to Huet, "The Dutch made so good use of these treaties, and several other advantages they got in the north, that they almost entirely stript all the Hansa towns, Hamburg only excepted, of the little trade there was left them, and (if we may be allowed to say so) made themselves sole masters of the commerce of the north."

Another important concession secured by the Dutch was a free passage to Archangel. We have treated in the beginning of the chapter on Russia in this work of the discovery of the route to Archangel by Chancellor, in 1553, and of the privileges granted to English merchants to trade there. The Dutch, some time afterwards applied, and got permission, to trade with Archangel, in spite of a strong opposition. Thus all the northern ports were open to them. To Archangel alone 40 ships, of from 200 to 400 tons, sailed each year from Amsterdam, which latter town allowed them a convoy. The principal traffic was during the time of Archangel fair, in August. Of all the numerous articles sent, at that time, from Holland to Muscovy, linens formed a not inconsiderable part. These were in all probability of Silesian origin. To the Baltic ports, which include those in Sweden and Denmark, Mecklenberg, Pomerania, Prussia, Courland, and Livonia, Holland had an enormous traffic. The two former kingdoms were furnished with linens and other goods. Denmark supplied little in return but cattle, but Sweden was a much richer country in natural wealth. Swedish copper was in great demand. The Dutch monopolised the product of all the mines, and, subsequently, the complete trade of Sweden. The bulk of the vast quantities of linen and linen yarn acquired by the Dutch from Silesia came by way of Stettin, then the capital of Pomerania, and part of the Brandenburg linens came by the same route.

At Hamburg the Dutch procured linens of lower Germany, and linens and linen yarns of Bohemia, and the Ems brought to Emden the linens of Westphalia, made largely by the inhabitants of the Bishoprics of Münster and Paderborn. Emden was a fine imperial town, under the protection of Holland from 1595 until 1774, and from it large quantities of Westphalian linen goods found their way to Holland. We have no materials available to show extent of trade in linens between Bremen and Holland at the time of which we write, although, according to Oddy, Bremen received by the Weser, Werre, and Fulda, and other rivers of less note, produce and manufactured goods, linen in particular, from Saxony, Hesse, and Hanover. The statistics given by Oddy in his *European Commerce* are of a much later date, and belong to a time when the countries above mentioned had cultivated an export linen trade. We have noted that Holland exported linen to Muscovy by way of Archangel; coarse linens were also sent to Muscovy through Riga, and to Poland by Dantzig. To other countries on the Baltic we can trace, at this early period, no linen exports from Holland, except what may be assumed from a general remark that coarse linens were exported to other countries of the north. But evidently Holland bought large quantities of flax and hemp, and their seeds, from these northern countries. From the Duchy of Courland, then under the protection of Poland, a great deal of linseed was transported to Holland for oil making; great quantities were also sent into Flanders. It was stated that the Flanders seed was apt to degenerate and become unfit for sowing. From

Livonia, then belonging to Sweden, flax and hemp were bought; this produce was partly the produce of that province and partly that of Muscovy and Lithuania, brought to Riga for convenience of transport. From Revel, Narva, and Pernau, hemp, flax, and linseed were sent to Holland. At Königsberg were procured large quantities of Lithuanian and Polish hemp. Hemp and flax, indeed, formed the bulk of one of Holland's principal trades with the north. The quantity brought must have been prodigious—sufficient, it is stated, to furnish almost all the ports of Europe. The Silesian linens bought by the Dutch were sent to Spain and the coast of Africa.

We have, until now, dealt with the Dutch trade in the Baltic before St. Petersburg, or Petrograd, as it is now named, was built; viz., from the fall of Antwerp in 1585 until about the close of the seventeenth century. Holland, according to Marshall, employed from one thousand to twelve hundred ships, of four to five hundred tons burden, in the Baltic trade alone. These, for the most part, went half loaded and returned fully laden. The inland traffic of the Dutch by means of the Rhine and the Meuse was of great importance, these rivers and their tributaries tapping large and fruitful lands. Cologne was the chief town of the Rhine commerce, and it was always the care of the Dutch to preserve the liberties of that town and the navigation of the Rhine. Liège, the chief commercial town on the Meuse, was in like manner protected by Holland, which country, in time, became entire master of the Electorate of Cologne and the Principality of Liège. We can trace no linen imports into Holland by way of the Meuse, but by the Rhine from the Duchies of Juliers or Julich and Berg, then belonging to the Elector Palatine, quantities of flax, yarn, and linen were brought into Holland; the countries adjacent to these two Duchies also provided similar goods. We have already spoken of Holland's imports from the Spanish Netherlands, and the means taken by the Dutch to draw the manufactures to themselves. When Holland made peace with Spain, every precaution was taken to prevent the re-establishment of commerce at Antwerp. The Dutch knew that the advantageous situation of that town would again revive its trade if not obstructed, so they kept the Scheldt blocked, and laid severe regulations on the Antwerp trade. They had no fear of the commerce at Bruges and Ghent, as they were in command of the outlets of the canals from these towns to the sea. Vast quantities of fine linen goods of all sorts were brought from Flanders, principally by way of Ghent and Bruges—the Dutch had, in fact, become masters of the trade of Flanders and Brabant, and by reason of their bordering on these provinces, and the advantage they had of the rivers and canals, the transport of goods was greatly facilitated, and with expedition and little expense.

Since the establishment of the republic in Holland the Dutch trade with France was very considerable; almost innumerable articles of French manufacture are detailed as received in Holland and distributed by the Dutch to all the Provinces of North Germany, the Low Countries, Spain and Portugal, Italy, the Levant, the coast of Africa, and even the Indies. The French at that time knew little of navigation, and but for the immense carrying power of the Dutch the manufactures of France would have found little vent by the sea. The French ports were continually filled with Dutch vessels, which took away the surplus of their manufacture, and thus added greatly to the riches of France. It was computed, in 1659, by the Dutch Ambassador in France, that Holland purchased yearly about thirty-five millions of livres' worth in French commodities, of which sum five millions were spent on linens from Normandy and Brittany. In the same report it is noted that large quantities of hemp were sent to Holland in plentiful years. There are also records of a considerable Dutch export to France of all sorts of linen cloth and flax and hemp. The friendly commercial relations between the two countries lasted until 1667, when the French greatly increased the duties on foreign merchandise. It was their intention to continue to sell to the Dutch, but to buy nothing from them. This unpracticable project they actually set on foot. They established an East India Company and others for the Levant and the Northern trade, in order to furnish themselves with such merchandise as they had occasion for from these countries. Then they began to foster in France the manufactures of other countries, in the belief that those countries could not do without the former manufactures and products of France. The Dutch, in retaliation, set up in Holland the manufactures of France, prohibited French wines and brandies from entering their ports, and laid new duties on all goods of French manufacture, thus fighting France with her own weapons, with the result that the French soon perceived a very great diminution of their commerce. The war of 1672, between France and Holland, put an end to trade on both sides until this was concluded in 1678, on the 10th August, when a new treaty was made granting the former enjoyment in respect of commerce and navigation. In consequence of this treaty the tariff of 1667 was abolished in favour of the Dutch, but the French commerce once destroyed never fully recovered. The Dutch had found other centres in which to purchase, and had themselves established many of the French manufactures, notably in silks, gold and silver brocades, hats, ribbons, laces, etc., so that their trade with France decreased, to the no small detriment of the latter country. Spain and Portugal, and their vast overseas territories, consumed immense quantities of linen goods. Holland, however, was deprived of any advantage of trade with them except in times of peace. With Portugal the Dutch had traded extensively until 1580, when that country and all its dependencies became united with the crown of Spain under Philip II., Holland's arch enemy. For a considerable time after the Dutch revolt from Spain, Philip connived at a certain Dutch commerce. From the Baltic provinces he procured what was necessary to build and equip his fleets, and only through the Dutch could he acquire these goods, but in spite of this connivance the Spaniards treated the Dutch merchants with such cruelty that they were compelled to abandon the trade.

A truce, which was to last for twelve years, was concluded between Spain and Holland in the year 1609, and this re-established the freedom of trade between the two nations. By this truce it was agreed that Dutch traders should pay no greater duties than those of other countries, and would be secured from apprehending anything from the Inquisition. The war was revived at the conclusion of the truce in 1621, and this seriously interrupted the trade until, in 1648, a more permanent peace was concluded at Münster.

During these peace periods, but more especially after the peace of Münster, the Dutch trade with Spain increased rapidly, until again interrupted, in 1701, by the war of the Spanish succession. The war of 1672, between France and Holland, considerably augmented the trade of the latter country with Spain, for not only did the Dutch merchants furnish the Spaniards with many goods formerly got from France, but they took from Spain foods formerly supplied to them by France.

We have already noted Holland's trade with the Spanish Netherlands, which, despite the several wars between the two nations, and interdicts published in those Netherlands, seems to have suffered little, if any, interruption. The great volume of export, however, was to Cadiz and ports in the Mediterranean. The trade in linens centred at Cadiz, from which then famous port the galleons were fitted out for Peru, and the flotilla for Mexico and New Spain. It is noted, in such meagre information as we have at disposal, that linens of all sorts formed the most important part of Holland's consignments to Spain. There was a vast consumption of linen goods both in Spain and her overseas possessions, and many countries supplied these goods. Those brought in by the Dutch were partly of their own manufacture; namely, the finest class of linens made in Overyssel, and about Douay and Valenciennes (these latter towns were ceded to France in 1667 and 1678 respectively). Lawns and cambrics from these places were sold to Spain, as were also linens called Perseilles and Brabants, very broad and coarse, also table linen and many other sorts. In 1640 Portugal freed herself from the dominion of Spain, and from that time her commerce with Holland extended. The trade was principally with Lisbon and Oporto, to which towns, especially the former, were transported great quantities of linen. In the Spanish and Portuguese section of this work the reader will find further details of the linens imported by these countries.

When Portugal became united to Spain in 1580, and all commercial intercourse with Holland was completely blocked, the Dutch were deprived of the products of the East Indies, Africa, and Brazil, all of which at that time passed through the hands of the Portuguese. The far eastern trade continued to be carried on with Europe through the Mediterranean ports until about the year 1498, when the Portuguese, having sailed round Africa, came to India and established there a most lucrative and exclusive trade. The Dutch had hitherto bought the rich commodities at Lisbon, and being now, as we have said, deprived of that trade, came to the bold determination to trade directly with the East Indies. Fearing the Portuguese men-of-war, they tried to force a passage by the North, but were compelled to abandon that task; the only passage remaining was the one navigated by the Portuguese. They fitted out four vessels laden with goods, one of which they had to abandon, but three of them arrived and returned again to Holland in safety. This voyage, having proved most fruitful, several companies were formed to prosecute a commerce to the East, trading as separate undertakings until 1602, when they all united under the appellation of the Dutch East India Company. This great enterprise materially helped the Dutch trade, and we find that in an incredibly short space of time the trading was not alone between Europe and the far east, but also between the far eastern nations. In a work published in 1757, entitled *The Present State of Europe*, in which there is a passage referring to the Dutch East and West India Companies, we read as follows: " If, therefore, we reflect upon the grandeur of these two companies, and take into our consideration also the vast extent of the Dutch commerce besides in the early days of this Commonwealth, when the trade of Italy was sunk, the maritime power of Spain and Portugal in a great measure ruined, the vigour of the Hansa towns in Germany vastly declined, the commerce of Great Britain in its infancy, and hardly any trade at all in the North, we may very easily conceive how the subjects of the United Provinces, at the beginning of last century (seventeenth), came to have more shipping than all the rest of Europe together." The Dutch not only absorbed the trade of the far east, they took over and retained many of the important Portuguese possessions there. In 1698 a certain Daniel Braemo, who had been Book-keeper General in Batavia for thirty-five years, made a report to the States General of the state and condition of the company of the United Provinces in the East Indies. We extract from this report some references, however slight, of the linen exports from Holland to the Molucca Islands, commonly known as the Spice Islands; especially to Ternate of that group were large quantities of coarse linens sent. To Amboyna the shipments were small, with Macassar a considerable linen trade was done, to Malacca it was recommended to send a good director, " for it is certain, says the report, that there is a good vent in that town for great quantities of linen cloth of all sorts, as well as in many other towns, its dependencies, or which lie round about it, as Andragieri, and such places as lie along the rivers of Sierra, Perra, etc., where, for the most part, the payments are made in gold and tin."

In Sumatra the payment for pepper was made in linens, " which has powerfully engaged the company to preserve this trade." To Padang and to Batavia several sorts of linen were exported, and even to far-away Japan, where the Dutch had complete control of commerce. Besides these places Holland traded to many others in the far east, to Siam, Bengal, Coromandel, now the east coast of Madras, Ceylon, Malabar, Persia, etc. The company established a considerable navigation between these places, carrying the products of one to another. We have only mentioned the exports of linens given in the report, but it may be supposed with reason that an even greater and more extensive trade in these goods was carried on. It is curious to note that no goods of European manufacture, except linens, are notified in this report.

The trade of Holland to England and her colonies was greatly disturbed by Cromwell's Navigation Acts of 1650 and 1651. The Dutch had been practically the carriers of the world, and these Acts aimed at the overthrow of the monopoly. By them it was enacted that no goods could be exported to England or her colonies from any country not being actually the place of manufacture. Holland's enormous commerce, depending so much on the products of other nations, received a severe blow, her vast Baltic trade in timber, masts and other necessaries for the English shipping trade was stopped, as also the carriage of goods from many European countries. As we have shown, Holland's great linen commerce was dependent largely on Silesia, Flanders, and other cheap producing countries; her own manufacture of linen up to that time was inconsiderable, and confined to the better class of goods, so that the bulk of her linen commerce to England and her American plantations was lost. These Acts also stipulated that no merchandise of Asia, Africa, or America should be imported into England in any but English-built ships, and belonging either to English or to English-Plantation subjects, navigated also by English commanders, and three-fourths of the sailors Englishmen.

It was further enacted that no fish should be imported into England or Ireland, nor exported from thence to foreign ports, nor even from one of our own home ports to another, but what was caught by our own fishermen. One can clearly see how these navigation Acts grievously affected the Dutch commerce, and led to the naval war which broke out next year between these two great republican nations, and which lasted for two years without any more important result than the continual interruption, during that period, of Holland's commerce by the English fleets. Rogers, in his *History of Holland,* remarks: " It is said that the two years' war with England involved greater losses to the Dutch merchants than they suffered during the whole of the war with Spain."

The advent of the French Protestant refugees in 1685 gave an impetus for a time to the Dutch manufacturing trades, but we cannot trace much development of the linen manufacture, except as before mentioned. There was introduced the spinning of fine counts of yarn and weaving of fine cloth. The majority of the linen-producing artisans exiled from France settled in Brandenburg. Many sought refuge in the British Isles. Holland, as we have endeavoured to show, was never in an economic situation to produce linen goods cheaply. The lengthened wars with Spain had laid upon her an enormous burden of debt, and the wars she engaged in with England and France added materially to this burden. The cost of living was high, wages were high, except in certain specialised industries there was no chance of competition with the surrounding countries, and yet during the seventeenth century Holland flourished above all other nations and accumulated great wealth. Sir William Temple, in speaking of the foundation of the riches of Holland, says: " Never any country traded so much, and consumed so little; they buy infinitely, but it is to sell again, either upon improvement of the commodity, or in a better market. They are the great masters of the Indian spices and the Persian silks, but wear plain woollens and feed upon their own fish and roots. Nay, they sell the finest of their own cloth to France, and buy coarse out of England for their own wear. They send abroad the best of their own butter into all parts, and buy the cheapest out of Ireland or the north of England for their own use. In short, they furnish infinite luxury which they never practise, and traffic in pleasures which they never taste."

The seventeenth century showed the amazing rise and progress of the commerce of Holland—the eighteenth showed its gradual decline. Sir William Temple, in 1672, predicted this decline, and the circumstances leading to it, with wonderful accuracy. First of these was the great increase of trade in other countries, notably England, France, Sweden, and Denmark, since the peace of Münster in 1648. Another cause was the low price of corn in the Baltic Provinces, due also to this peace, and to the inability of the people there to purchase, at high prices, the products of the East Indies. As we have quoted Sir William Temple's words in speaking of the foundation of Holland's riches, we will quote the words he uses when indicating one of the causes of Holland's decline :—

> " There seems to have been growing on, for these later years, a greater view of luxury and expense among many of the merchants than was formerly known, and which was observed and complained of, as well as the enlargement of their city (Amsterdam), by some of the wisest of their Ministers, while I resided among them, who

> designed some regulations by sumptuary laws, as knowing the very foundations of their trade would soon be undermined if the habitual industry, parsimony, and simplicity of their people came to be over-run by luxury, idleness, and excess. However, it happened I found it agreed by all the most diligent and circumspect enquiries I could make that in the years 1669 and 1670 there was hardly any foreign trade among them, besides that of the Indies, by which the traders made the returns of their money without loss, and none by which the common gain was above two or three in the hundred; so it seems to be with trade, as with the sea (its element), that has a certain pitch above which it never rises in the highest tides, and begins to ebb as soon as ever it ceases to flow, and ever loses ground in one place proportionate to what it gains in another."

We have traced, in a cursory manner, Holland's trade until the end of the seventeenth century, dealing particularly with the linen trade in so far as scanty material permits. During the eighteenth century the Dutch carrying trade diminished gradually, but surely, and with it diminished trade and commerce. Joseph Marshall, the Economist, visited a number of European States in the years 1768-9 and 1770, amongst others Holland and Flanders. His impression of the state of those countries in respect of agriculture, manufactures, and commerce sheds some light on our subject. To begin with, Marshall's deductions in reference to the decline of trade, and those of contemporary Dutch writers, as well as statements made to him by prominent Dutch merchants, confirm and augment the reasons already given for decline. The enormous taxation consequent on the wars was the result of the vast credit of which the Republic was compelled to make use, and the excessive import duties, in a country by no means self-supporting, made labour infinitely dear, and restrained industry and manufactures. The Dutch East India Company had no longer a monopoly, similar companies having been established in England, France, Denmark, and Sweden. The mercantile marines of these countries, especially of England, were greatly enlarged, and the carrying power of the Baltic was no more exclusively in the hands of the Dutch. In 1753 there entered the port of Petrograd 327 ships; of these 149 were English, 70 Dutch, 3 French, 8 Russian, 25 Lübeckers, 18 Danish, 21 Mecklenburgers, 6 Dantzigers, 2 Hamburgers, 10 Stettiners, 1 Holsteiner, and 14 Swedish. If we may judge from this, England had nearly half the trade of the Baltic, and Holland less than one-fourth. Later reports by Oddy show a very similar proportion for the Baltic trade by way of the Sound. When the Holstein Canal was opened in 1784 the trade to Holland was greatly facilitated, as well as that to Emden. Nearly half the vessels passing through this canal belonged to Denmark, and the remainder, trading principally to Holland and Emden, sailed under Prussian colours. English vessels made little use of this canal except during the blockade of the Elbe. The Baltic States were largely engaged in carrying on a direct trade with the south of Europe, thus competing with Holland in buying and selling. On the actual manufactures carried on in Holland in the middle of the eighteenth century, Marshall gives some notes from an account of them published in Holland, from which we select some information. Linens continued to be manufactured in Groningen, Friesland, and Overyssel, but the bulk of those exported were of foreign manufacture, principally from Westphalia, Juliers, Flanders, and Brabant. These were bleached in Holland and exported as Dutch linens. The manufacture of coloured linens had very greatly declined, owing to competition in countries where labour was cheaper.

CHAPTER XLIV.

Haarlem Fine Bleach

Reference has been made to the bleaching of linens in Holland, which was carried on principally at Haarlem. Several writers mention the efficacy of the water which was procured from Haarlem Lake, then situated about five miles from the town and containing a surface area of 42,000 acres. The water percolated into this lake through sand dunes and thus was filtered. This huge lake was afterwards drained. Work commenced in 1839, and in nine years time a dyke was built round it. Steam pumping-engines were employed and worked for four years until the lake was drained, thus adding a large and valuable tract of arable land to the country. The softness and purity of Haarlem Lake water were renowned, and many extensive bleach-works were erected on the shores. Besides the German and Belgian linens above mentioned large quantities came from Silesia to be bleached. These, according to Jacob, in his *View of Germany*, were mainly fine linens as they came from the loom, so that these and linens of other countries were "more generally denominated Holland, than called by the name of the country in which the most material operations were executed." Marshall speaks of "whole ship-loads" of linens from Scotland and Ireland being brought to Haarlem to be bleached. Thus we find that, during the eighteenth century, when the actual manufacture of linen in Holland had so materially declined, the fame of Dutch linens (so called) was still great. According to Dr. Home, the old Dutch method of bleaching was as follows.

" After the cloth has been sorted into parcels of an equal fineness, as near as can be judged, they are latched, linked, and then steeped. Steeping is the first operation which the cloth undergoes, and is performed in this manner. The linens are folded up, each piece distinct, and laid in a large wooden vessel, into which is thrown, at blood heat, a sufficient quantity of water or equal parts of water and lye, which has been used to white cloth only, or water with rye meal or bran mixed with it, till the whole is thoroughly wet and the liquor rises over all. Then a cover of wood is laid over the cloth, and that cover is secured with a post betwixt the boards and the joisting to prevent the cloth from rising during the fermentation which ensues. About six hours after the cloth has been steeped in warm water, and about twelve in cold, bubbles of air arise, a pellicle is formed on the surface of the liquor, and the cloth swells when it is not pressed down. This intestine motion continues from thirty-six to forty-eight hours, according to warmth of the weather; about which time the pellicle or scum begins to fall to the bottom. Before this precipitation happens, the cloth must be taken out and the proper time for taking it out is when no more air bubbles arise. This is allowed to be the justest guide by the most experienced bleachers. The cloth is then taken out, well rinsed, disposed regularly by the selvage, and washed in the put-mill to carry off the loose dust. After this it is spread on the field to dry. When thoroughly dried it is ready for bucking, which is the second operation. Bucking, or the application of salts, is performed in this manner. The first or mother lye is made in a copper, which we shall suppose, for example, when full, holds 170 Scots gallons of water. The copper is filled three-fourths full of water, which is brought to boil; just when it begins the following proportion of ashes is put into it; viz., 30 lb. of blue, and as much white pearl-ashes; 200 lb. of Marcoft ashes (or if they have not these, about 300 lb. of Cashub); 300 lb. of Muscovy or blanch-ashes; the three last ought to be well pounded. This liquor is allowed to boil for a quarter of an hour, stirring the ashes from the bottom very often, after which the fire is taken away. The liquor must stand till it has settled, which takes at least six hours, and then it is fit for use. Out of their first or mother lye, the second, or that used in bucking, is made in this manner. Into another copper, holding for example 40 Scots gallons, are put 38 gallons of water, 2 lb. soft soap, and two gallons of mother lye; or, for cheapness in place of the soap, when they have lye which has been used to white linens, called white linen lye, they take 14 gallons of it, leaving out an equal quantity of water. This is called bucking lye. After the linens are taken up from the field, dry, they are set in the vat or cave (Keeve), as their large vessel is called, in rows, that they may be equally wet by the lye, which, made blood warm, is now thrown on them, and the cloth is afterwards squeezed down by a man with wooden shoes. Each row undergoes the same operation until the vessel is full or all the cloth in it. At first the lye is put on milk-warm, and after standing a little time on the cloth, it is again let off by a cock into the bucking copper, heated to a greater degree and then put on the cloth again. This course is repeated for six or seven hours, and the degree of heat gradually increased, till it is at the last turn or two thrown on boiling hot. The cloth remains after this for three or four hours in the lye, after which the lye is let off, thrown away or used in the first buckings, and the cloth goes on to another operation. The cloth is then carried out, generally early in the morning, spread on the grass, pinned, corded down, exposed to the sun and air, and watered for the first six hours, so often that it never is allowed to dry. Afterwards it is allowed to lie till dry spots appear before it is watered. After seven at night it gets no more water unless it be a very drying night. Next day in the morning and forenoon, it is watered twice or thrice if the day is very dry, but if the weather be not drying, it gets no water, after which it is taken up dry if the green is clean ; if not, it is rinsed, mill-washed, and laid out to dry again to become fit for bucking. This alternate course of bucking and watering is performed for the most part from ten to sixteen times, or more, before the linen is fit for souring ; gradually increasing the strength of the lye from the first to the middle bucking and from that gradually decreasing it till the souring begins. The lyes in the middle buckings are generally about a third stronger than the first and last.

"Souring, or the application of acids to the cloth, is the fourth operation. It is difficult to say when this operation should commence, and depends mostly on a length of experience. When the cloth has an equal colour and is mostly freed from the sprat or outer bark of the lint (flax), it is then thought fit for souring, which is performed in the following manner. Into a large vat or vessel is poured such a quantity of buttermilk or sour milk as will sufficiently wet the first row of cloth, which is tied up in loose folds and pressed down by two or three men barefooted. If the milk is thick, about an eighth of water is added to it ; if thin, no water. Sours made with bran or rye meal and water are often used instead of milk, and used milk-warm. Over the first row of cloth a quantity of milk and water is thrown, to be imbibed by the second, and so it is continued till the linen to be soured is sufficiently wet and the liquor rises over the whole. The cloth is then kept down by covers filled with holes, and secured with a post fixed to the joist, that it may not rise. Some hours after the cloth has been in the sour, air bubbles arise ; a white scum is found on the surface, and an intestine motion goes on in the liquor. In warm weather it appears sooner, is stronger, and ends

> sooner than in cold weather. Just before this fermentation, which lasts five or six days, is finished, at which time the scum falls down, the cloth should be taken out, rinsed, mill-washed, and delivered to the women to be washed with soap and water. Washing with soap and water is the fifth operation, and is performed thus. Two women are placed opposite at each tub, which is made of very thick staves, so that the edges, which slope inwards, are about four inches in thickness. A small vessel full of warm water is placed in each tub. The cloth is folded so that the selvage may be first rubbed with soap and warm water length-ways till it is sufficiently impregnated with it. In this manner all the parcel is rubbed with soap, and afterwards carried to be bucked. The lye now used has no soap in it, except what it gets from the cloth, and is equal in strength to the strongest formerly used, or rather stronger, because the cloth is now put in wet. From the former operation these lyes are gradually made stronger till the cloth seems of a uniform white, nor any darkness or brown colour appears in its ground. After this the lye is more speedily weakened than it was increased, so that the last which the cloth gets is weaker than any it got before. But the management of sours is different; for they are used strongest at first, and decreased so in strength that the last sour, considering the cloth is then always taken up wet, may be reckoned to contain three-fourths water. From the bucking it goes to the watering as formerly, observing only to overlap the selvages, and tie it down with cords, that it may not tear; then it returns to the sour, milling, washing, bucking, and watering again. These operations succeed one another alternately till the cloth is whitened, at which time it is blued, starched, and dried."

This process, including the field bleaching, required from six to eight months to complete. At Haarlem this industry continued large and lucrative until the end of the eighteenth century, when the modern system of bleaching by the agency of chlorine practically stifled it.

CHAPTER XLV.

Flax Culture and Treatment

We have already quoted Sir William Temple's statement made in 1672 that the Dutch imported the flax they manufactured in Holland. We have no desire to dispute the accuracy of the great diplomatist and writer, whose knowledge of Dutch affairs was so complete. Most probably he was speaking in general terms, or it may be that the linens manufactured in Holland at that time were of Flemish flax. That flax-growing was carried on in Holland before the time mentioned by Sir William is indisputable. De Witt, who came to his untimely end in 1672, writes of the growth of flax and hemp, but to what extent cultivated he does not say. There is, however, every evidence of a skilful flax-culture at the beginning of the eighteenth century, which admitted of considerable export. The decline of the linen-manufacture at that period would allow this export.

In giving a description of the Dutch methods of raising flax and the after manipulations of retting and scutching, we avail ourselves of two authorities. One is Richard Hall, who wrote a treatise on the subject 1724, after visiting Holland at the instance of the Irish Linen Board, in order to gain information which might be useful for the better management of the flax crop in Ireland. The other authority is anonymous; the writer's letters appear in the transactions of the Dublin Society for 1736-7. That society, in a preface to the letters, states that the informations given "are all deduced from facts, which the author of these letters carefully examined, and whereof he was a frequent eye-witness during his residence in Holland and Flanders, and his station in life and relation to this country set him above being influenced by little private views. We can, therefore, recommend his essays with entire confidence, and promise considerable success to those who will be directed by them." These essays were written for the purpose of inducing a more scientific method in Ireland, and give comparisons between the modes prevailing in Ireland and Holland at the time. They show very distinctly that, 200 years ago, the Dutch had an intimate knowledge of the science of flax-culture and manipulation, which might with advantage be utilised in Ireland to-day. In these essays, great stress was laid on the saving of seed—it was considered that sandy or light soil produced fine flax, but in small quantity, and the seed was liable to degenerate. A deep, stiff, moist, clayey soil, under proper tillage, produced the best flax-seed, and a much larger quantity of flax. The province of Fenland having soil of this description was chosen for the growth of flax. The ground was laid out in broad, flat ridges, divided by small trenches. The ridges were from fifty to seventy feet broad and the trenches two or three feet deep and eighteen inches wide. By these means the land was kept in a proper degree of moisture, the trenches carrying away all excess. In Flanders, where the soil is light and dry, no trenches were made, in order to retain all the moisture procurable. The Dutchman was very careful in his choice of seed, and had his own method of testing it. In general, the shortest, plumpest, thickest, oiliest, heaviest seed, of a bright brown colour, was esteemed the best. His mode of testing was as follows:—In order to discover its thickness, he took a large handful and squeezed it until the edges appeared plainly between his finger and thumb, for it was entirely from the edge he formed his judgment in that particular. To try its weight, he threw a handful into a glass of water: if it sank soon, he was sure it was heavy and good; if otherwise, he judged it unfit for his purpose. To examine its oiliness, he threw a quantity into the fire: if it blazed soon, and crackled much, he might depend upon it. Even after these trials he would sow some in a hot-bed, and would leave no means untried to satisfy himself. These methods of testing seed were, we are sure, more necessary in those days than now. They serve, however, to show the care the Dutchman exercised in making his choice. It was considered inadvisable to depend on a succession of good seed from the same soil; it was better to change the seed frequently; viz., to buy from lighter grounds to sow on clays, and to buy from clay soils to sow on lighter soils. It was the rule in Holland that the farmer concerned himself no further with his crop after it was sown. The flax-dresser bought it standing, weeded, pulled, and saved it at his own cost. The first care of the flax-dresser after pulling was to ripple; the flax was pulled in handfuls of a size convenient for this purpose. According to Richard Hall, the flax reserved for seed was never rippled the same season, but kept till the ensuing spring, being housed or stacked in the meantime. Housing in barns was strongly advocated. The common toothed ripple was used, two men working at it at the same time opposite each other, drawing the flax alternately through the ripple until it was freed from the balls or husks containing the seed. These men were attended by two boys or women, who served them with unrippled flax, and tied up the bundles which had gone through the operation. This tying was done loosely, in order that in the retting process the water might penetrate thoroughly, but these women had another care, namely, to sort the flax straw as it was rippled, for it was asserted that if the coarse and fine, the ripe and unripe, were mixed together the whole would be injured in the retting, the unripe flax fermenting with greater ease and in shorter time. The case, in some degree, was the same between coarse and fine straw. The Dutch were always careful of the water they employed in the retting process. If soft and clear water could be procured it was naturally used; in districts where not procurable, it was the custom to fill the retting dams early in the summer, and allow the influence of rest, with precipitation and sun and air, to bring the water to a degree of softness necessary. According to Richard Hall, the drains about the lands were frequently used. When the flax had been retted and grassed, it was tied up in bundles in the usual way, but, in doing so, care was taken that each bundle contained flax straw of equal length, and as near as possible it was in the same manner sorted for fineness, strength, and softness. The foregoing we have on the authority of the writer to the Dublin Society. Richard Hall is silent on this subject of sorting, but states that the grassing occupied but two days, unless some of the flax appeared under-retted, in which case it was left on the grass until sufficiently retted.

In those days it was the custom to dry flax straw artificially before scutching. In Ireland they had a pernicious system of laying the straw on hurdles and lighting a fire underneath. Unequal drying, discolouration by smoke and risk of fire, were obvious consequences. In Holland the straw was dried or baked in ovens, the heat not being intense—if a man could stand in the oven without uneasiness, the heat was proper. After the straw had remained in the oven twelve hours, it was withdrawn and laid aside for six hours, and was then ready for the brake. This implement, as the illustration shows, consisted of two main parts—one fixed, the other movable. The upper or movable part had two longitudinal bars or knives of beech, which when lowered fell into the spaces of three similar bars on the bottom or fixed part. The flax straw was laid with the right hand on the stationary portion A B, while with the left hand the upper part was gripped at the handle C and repeatedly lowered and raised; during this time the right hand was occupied in whipping and turning the flax under the brake until the boon or straw was sufficiently broken. The writer has seen many brakes similar to this in use in various parts of the Continent, notably in Bavaria, Bohemia, and Moravia. The next operation of scutching was also performed by hand. The scutching-board and handle shown in the next illustration were similar to those in use in Ireland at the same period, and indeed to many in use on the Continent to-day, yet even in this simple apparatus the Dutch model

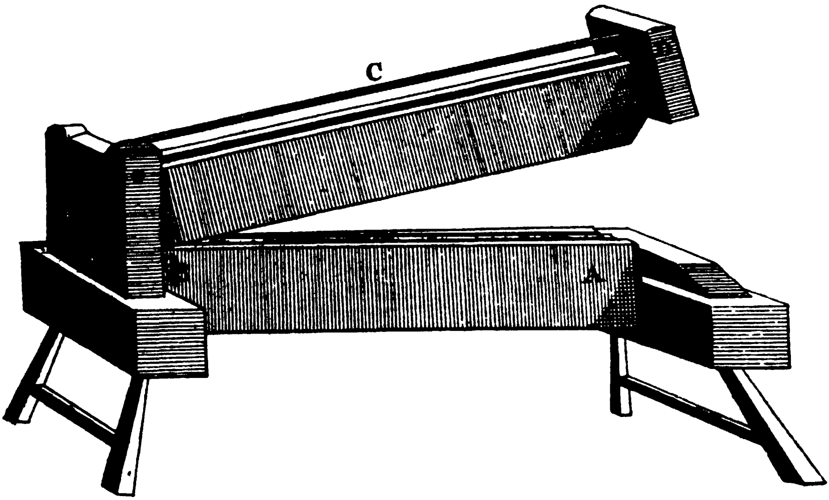


FIG. 33. DUTCH FLAX BRAKE.

had its advantages. In Ireland the scutcher suspended the flax over the top of the board, holding it close to the top with his left hand, while with his right he brought the scutching handle to bear upon the flax, with sharp blows clearing away the broken boon. Frequently the handle would strike the flax on the top of the board, thus injuring the fibre. In the Dutch board a notch was cut at A, into which the flax was placed, and the handle striking on the pendant flax, could in no wise damage the fibres as it might when the flax was laid over the board.

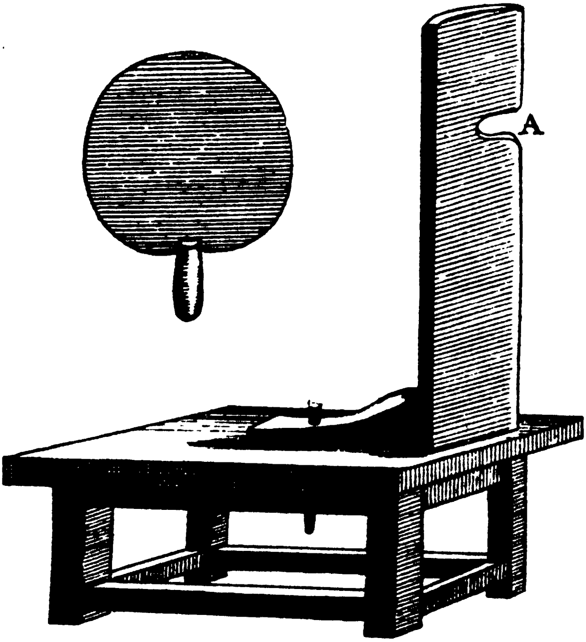


FIG. 34. DUTCH SCUTCHING-BOARD AND HANDLE.

A penny per pound was the price paid to the master scutcher for breaking and scutching flax in quantity; something less, therefore, was paid to the workmen. The payment in Holland for such work at that time was twenty pence per day. The men, if they preferred, were put on piece-work, so it is evident that a day's work in breaking and scutching amounted to at least 20 lb. About three months was occupied in the scutching operations, then the question of the seed was taken up. This had lain in the barns, untouched, since it was rippled. If any of the balls had shed their seed, it lay unharmed on the heap. The balls or husks were broken by horses driven over them as they lay three feet deep on the brick or stone floor; the horses being smooth-shod, did not injure the seeds. As there is no crop that suffers more from weeds—says the account—it is of great importance to flax husbandry to cleanse the seed from pernicious mixtures of all foreign ones. To effect this the Dutch employed a blowing apparatus figured in our next illustration. The fan which created the wind power was enclosed in a large box or case K L, and driven by the handle of the box, the other half being empty, and received the seed as it fell from the hopper B ; on a floor visible at C, along this the seed slid out of the machine at D, while the balls and lighter matter were carried out by the violence of the wind at E. The pressure of the wind was so regulated that the flow of good, heavy seed was not interrupted, the lighter and rotten seed being carried out with the balls. The hopper was lightly hung on cords and received a certain agitation through the medium of a crank in connection with the handle. When the seed had passed through this apparatus the next care was to free it from foreign matter too heavy to be carried away by the action of the wind, such as stones, earth, and especially pods of seeds or roots of plants. These were removed by allowing the flax-seed to pass through a sieve. As this would not remove all the noxious seeds, even of the larger kind, it was succeeded by another similar operation. The holes of the sieve here were of oval shape, and of a size just sufficient to let through the largest and finest flax-seed. Seeds of a different form could not pass these oval holes unless they were considerably smaller than the holes, so that many which escaped the former operation were retained in this. To free the smaller seeds still remaining, another sieve was used, the holes of which were adapted to retain the flax-seeds and permit the smaller noxious seeds to pass through. After this the flax-seed was passed over a wire screen; in this, as the seed slid gently down the sloping plane, it threw off all dust and any noxious mixture. Certain weed seeds, which had escaped in the former operations, slipped through the wires, and the flax-seed was left as clean as art and industry could make it.

The flax being scutched and the seed saved and cleansed, the various operations might be considered as completed. In the British Isles no further operation was undertaken, or considered necessary, but in Holland they had a supplemental process called fining, or in other

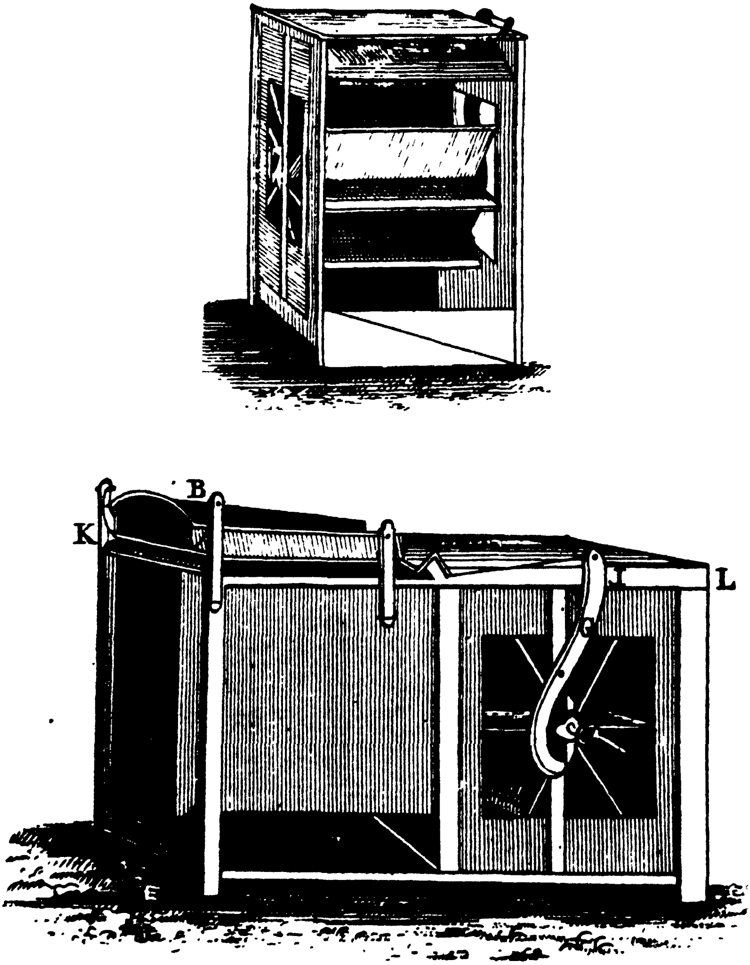


Fig. 35. Flax-Seed Cleaning Apparatus.

words, splitting the fibres very fine. For this purpose they employed a machine called a fining-mill.

It was contended by the author of the essays to the Dublin Society that fineness and strength in flax fibres are inconsistent qualities. To procure a fine fibre the flax must be pulled green, and the seed sacrificed. If the seed is allowed to mature, the fibre will grow strong and coarse. We will quote this gentleman's own words: "I hope it will not be expected that I should waste my own and your readers' time in proving by elaborate arguments that flax, as every other vegetable, is then strongest when it is thorough ripe. The thing is certain, and in vegetable economy, as well as in the animal, maturity is requisite to give the several parts their greatest strength and toughness and to harden the gristles into bones; but how the fibres, which certainly grow coarser as they increase in strength, may yield threads of equal fineness with those of greener flax, may deserve some illustration."

In describing the Fining-Mill, we think it well to copy that account of it given by the author to the Dublin Society; although a somewhat lengthy specification, it is fully explicit and easily followed. It is as follows:—

> "The Fining-Mill, which I have promised to describe in this letter, consists of several parts, some of which are absolutely requisite to its action, and others intended only to give the former their full play, and to make them work commodiously. This distinction is in all machines a necessary one, that the reader may the better be apprised where he must adhere strictly and closely to his model, and how far he is at liberty to recede from the draught before him without forfeiting the benefits accruing from the engine. In the Fining-Mill, the movable spindles C, and the cylinders or binders E, disposed circularly about the former as their axis, are the necessary parts. The frame and the wheel are arbitrary ones, may be changed at pleasure, and varied into any form which will admit of easy motion in the spindle, and a circular position in the binders. However, as the Dutch machine is certainly contrived in the plainest, cheapest, and most commodious manner, I shall, in this description, copy from theirs exactly, and recommend it to the readers in all its parts without distinction. The frame, as it is observable in the draught, is composed of two strong planks, A A, standing perpendicularly upon the floor, and retained in that position by three horizontal boards, marked severally as B in the figure. These are destined to give steadiness to the whole engine, and should, therefore, be strong

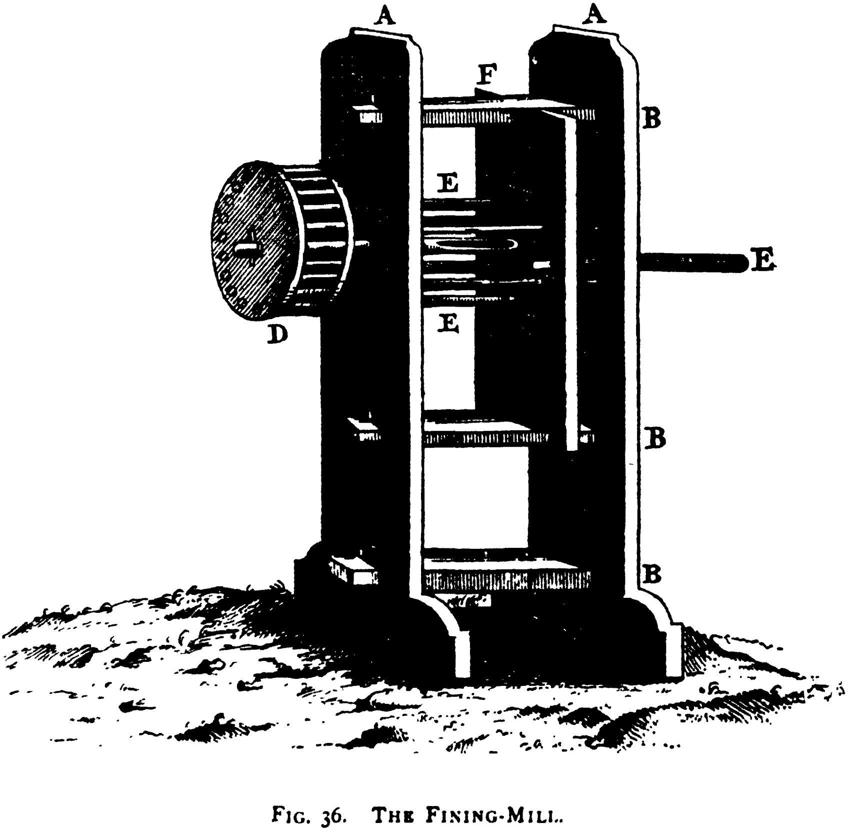


FIG. 36. THE FINING-MILL.

and tight, not to yield in the operation, which is attended with more stress upon the frame than an uncurious observer would expect. Two of these, the uppermost, besides the use common to them all, serve another purpose, and receive a third perpendicular plank F, movable between them, and, therefore, termed a slider. This plank should be inserted in the frame as tight as possible, and compressed as strongly, that in sliding along the boards it may retain its erect position, and be carried forwards and backwards as occasion serves, parallel always to itself. From the destination of this slider, which shall be explained below, it is acted upon with considerable force when the machine is set going. It should, therefore, be proportionately strong and firm, and as tough as any part of the whole engine. The frame thus finished; the two planks A A and the slider F are bored through severally and in the same horizontal line, to admit an iron spindle C inserted at one end in the large wheel marked D. Round this hole are disposed, in an exact circle, eight other holes to receive the binders E, which are nothing more than wooden cylinders of an inch diameter, which, like the spindle, run horizontally through the whole frame, go in at either of its sides, and proceed through the slider to the other.

" It is not necessary to describe the wheel, and I have left it to the choice of the engraver to annex any kind he pleases, or no wheel to the spindle, in the draught. The make and size of it depend entirely on the power applied to this machine, and must be of a different structure, as it is intended to be moved by wind or water, by horses or by hand. One thing only will require to be observed, that the movements must necessarily be contrived to turn the wheel two different ways, from the left hand to the right, and back again from the right hand to the left. Without this the operation could not proceed—as will appear by the short account of it with which I shall now conclude this paper.

"To understand this clearly, the reader must be first apprised that the iron spindle has an eye which extends from end to end of it, and is placed in an horizontal situation when the engine is to receive the flax. Through this eye the dresser runs his flax divided into little bundles, as it is generally imported into this kingdom. Each of these is separately inserted, and alternately from right to left, and from left to right. Hence, when the spindle is loaded with its complement, six pounds Dutch or thereabouts, the ends of all these little bundles are regularly and equally disposed on either side of it. These ends drawn out about three inches are tied over the spindle, each of them to its next neighbour on the other side, and the flax thus fastened, lapt about it half one way and half the other. To load it in this manner, the wooden cylinders which surround the spindle must be drawn out of the way, as one

> of them is represented in the figure ; but when that is over, they are forced back to their former situation to compress the flax, and then the wheel begins to move, and the machine is set a-going. If upon trial the flax is not sufficiently confined, or if it be the intention of the dresser to give it all the fineness which the engine can bestow, the slider already mentioned and described is then of use, and, brought forward on the spindle, contracts the space which the flax occupied before, and drives it forcibly under the binders, and as in this position it bears the whole pressure of the flax, it is obvious, as observed above, that it should be very strong, and firmly inserted in the frame. If I have succeeded hitherto in conveying to your readers a clear notion of the several parts of this machine, and the position of the flax, they will readily apprehend at present that when the spindle turns it draws no more than one-half of the little bundles after it close lapt about it, and strongly compressed between the binders, while on the contrary the other half is unlapped, by the same motion, riseth between the binders and resists the action of the spindle. It is, therefore, necessary that the wheel should move regularly and alternately one way first and then the other, that the bundles may undergo successively the several parts of the operation, rise between the binders, and then be stretched round the spindle. Either of these singly would answer the end imperfectly; together they split the flax, open its fibres, and, if I may be allowed the expression, polish them. I cannot compare this operation to anything in use among us, which can give a distinct notion of it. Those, however, will understand it pretty well who shall conceive of it as something not unlike rubbing of flax forcibly between the hands ; as that would do, it splits it, and by an alternate motion the same in kind, though stronger and more commodious than the former, rubs off all excrescences and makes it smooth as well as fine. What I have said of its advantages already will excuse one from recommending this machine at present. I shall, therefore, conclude abruptly by observing that the Dutch turn the wheel successively twice one way and twice the other, and that four score of these double turns each way advance flax to the greatest fineness it can receive from art."

We are unable to trace the use of the fining-mill to any country except Holland. In Ireland and Scotland, flax, after scutching, was beetled to produce the same results. When the author above quoted refers to flax being advanced to the greatest fineness it can receive, he speaks only of the scutching process ; the after process of hackling reduces the fibres to much greater fineness. The operation of hackling by hand, carried out in Holland and elsewhere in the olden days, is too well known to need description. It is in practice to-day in many countries. In Holland, women were employed as hacklers; with us the work has always been performed by men. The writer referred to contends, and we think with reason, that strong, brawny fellows should not be entrusted with an instrument which requires the lightest hand and gentlest touch, and which should be applied to flax with the utmost care and tenderness. He further adds: "It is an absurdity peculiar to ourselves to assign robust and able men a task which they cannot perform to purpose till they disuse their strength and vigour, and learn an artificial weakness." Before closing the survey of the linen trade in the Low Countries, we will glance briefly at the condition of that trade in Belgium after Austrian rule began.

By the Treaty of Utrecht, in 1713, and that of Rastadt in the following year, the Spanish Netherlands, with the exception of Artois and part of Flanders which were ceded to France, were assigned to Austria and became known as the Austrian Netherlands. The Spanish rule, extending over 160 years, had deprived the provinces of much of their great commercial and manufacturing prosperity, and matters were not improved by the several battles fought on Belgian soil. The Scheldt, Antwerp's outlet to the sea, was still closed by the Dutch, and, by arrangements resulting from the treaties above mentioned, was to remain perpetually closed. Access to the sea was necessary to the prosperity of the provinces. By an extension of the canals to Ostend it was considered that a proper exit might be secured, and a maritime trade be established. In 1722, an East and West India Company was established at Ostend, and factories founded in India, but the jealousies of the English and Dutch Companies were aroused, and such formidable protests were presented to the Emperor Charles VI., that he was compelled to suspend the operations of the Company in 1727, thus shutting Belgium out of all maritime intercourse with the East. After the death of the Empress Maria Theresa, in 1780, her son, Joseph II., visited his Netherland Provinces, and relying on the aid of his brother-in-law, Louis XVI., of France, he made a bold attempt to free the Scheldt, but his efforts proved futile. Not until the Union of Holland and Belgium, in 1815, did the latter country gain the outlet so much desired. We thus see how greatly the trade of the Austrian Provinces was hampered by the powerful influence of Holland.

Owing to the lengthened peace which Belgium enjoyed after Marlborough's victory at Malplaquet, in 1709, an era of prosperity was established, but this prosperity was mainly evidenced in the agricultural districts. The towns around which the manufactures were established were in poverty through lack of industry. Boulger, in his *History of Belgium*, writing of this period, says: "The fields of Flanders and Brabant were compared to gardens, and many of the provincial districts were as populous as towns. On the other hand, half the population of Bruges was composed of beggars, and the poor-houses of Ghent and Liège counted their inmates by the thousand." The manufacturing industry of Belgium, lost through the severity of Spanish rule, was not recovered by the more generous rule of Austria. It is true that cheapness of labour prevented the total extinction of the once flourishing linen trade. France and Holland still imported quantities of linens from Belgium, but the British Isles, Germany, and Russia had established mighty linen industries since Spanish rule began in Belgium. These industries not alone supplied the bulk of home consumption, but met a considerable demand for export elsewhere. We will select a few passages from Marshall's work, in which he refers to his travels through Flanders, in 1768. These throw some light on the linen industry and industry in general at that time. He refers to the views of a certain Baron de Walmonde, whom he met in Brussels, as follows:—

> "Respecting the present state of their manufactures, he informed me that the Government had exerted itself greatly in their favour, and in several instances with high success, but that it must, in general, be little further than preventing a greater decline; that they had not one manufacture comparable to what flourished in Flanders many years ago; that of laces was flourishing but not near so considerable as formerly, and the same observation was applicable to those of fine linen and tapestry; indeed, the attention given to manufacture in every country and state in Europe cannot but have drawn much from the old fabric long established. No article of manufacture is found in Flanders which is not strongly rivalled by some neighbour or other. This, with the internal mischiefs resulting from freedoms of corporate towns cramping the workmen, is very prejudicial to all industry in these provinces. The latter obstacle is much remedied by new regulations, but the former remains in full force. Notwithstanding these impediments, the fabrics of the Austrian provinces are by no means inconsiderable; the towns are thick, and all of them have some manufacture or other; their linens, laces, stockings, caps, cloths, druggets, carpets, etc., etc., are all considerable, employing great numbers of hands and bringing much money into the country."

Marshall speaks of Courtrai as "a pretty town, and very populous from the manufactures carried on in it of woollen and linen goods, for the latter of which they are very famous. None, however, are in so flourishing a condition as they were for some years before the last war." Ghent, with the surrounding country, seems to have retained some of its importance as a linen-manufacturing centre, as the following quotation will show:—

> "They have very flourishing linen manufactures throughout this country, but they are not confined to Ghent, though there are many in that town, but all the villages and almost every farm is a flax manufactory. Flax is the principal crop upon all the sandy parts of this country, and the farmers and labourers do not only grow it, but also dress and weave it, and the women and children spin it. Every little farmer has one or two looms, many of them five or six, and some seven or eight, according to the number of hands in the family. This makes the whole race of country people remarkably active and industrious. The servants and the farmer and his sons will weave linen of nights, and in wet days when they have not employment in the farm, and in this manner contribute greatly to earning a better income and maintenance for their families than in other countries where such time is appropriated to idleness. Besides these linen fabrics they have at Ghent some silk and woollen manufactures."

Reference has been made above to a linen manufacture at Courtrai, and to the growth of flax in the neighbourhood of Ghent, but we can find no trace in any work we possess, prior to the 19th century, of the use of the river Lys for retting purposes. Indeed, several 18th-century authorities on retting deprecate the use of rivers or running water for that purpose, and recommend the stagnant holes used in Ireland to-day. Richard Hall, for example, whose information was procured in Holland in 1724, gives his reasons why flax should not be retted in running water. Briefly they are as follow:—A current will fret and tear the fibres and cause waste in the working; those fibres which remain untorn will not be worth working, being hard and wiry; the running water will wash out all the sap of the flax. Water running through flax keeps it cold and prevents fermentation, which is essential. The objections against running water or rivers had no reference to the Acts in operation against fouling rivers or streams. The only advocate of running water was Louis Crommelin, in 1705, who recommends lake or lough water, especially such lakes or loughs as have some motion, and do not perfectly stagnate. As an alternative he advocates pits near some running stream, the pits to be four feet deep, and so contrived that the same quantity of water may run off at the lower end as comes in at the upper end from the stream; by this means, he claimed that the flax would get a good colour, and the linen or yarn would bleach better. He also claimed that flax, so treated, would not render the water harmful to fish; but if the water be allowed to stagnate, or had not sufficient motion, it became black and putrid, in which case it was injurious to fish life; but, he continues, "where the water has sufficient motion and room to dilate itself, the fish are so far from being injured thereby, that they nuzzle and delight to resort thereto without the least inconveniency." We are not in a position to assert that the Lys was used for retting purposes during the 18th century, although Crommelin's remarks point to the fact that it was customary to use running water then. Belgium did not become a great flax producing and flax export country until after the separation from Holland in 1830. At that time the new Government rendered aid to agriculture and especially advocated flax-culture. Kay's system of wet-spinning, introduced in 1825, made the spinning of fine yarns by machinery feasible, and the mills which, at that time, sprang rapidly into existence in England were largely supplied by flax of Belgian growth retted in the Lys.

GERMANY

CHAPTER XLVI.

Linen Troubles in Silesia

In treating of Germany we will deal with practically what was lately the German Empire, including Prussia, the several German sovereign states, and the Hansa towns. Very little is recorded of the early history of the linen trade in Germany. Dr. Zimmermann, writing on this question in his *Blüthe und Verfall des Leinengewerbes in Schlesien*, says that the earliest information of the industry in Silesia is derived from a sixteenth-century author—J. Cureus—who mentions a large linen commerce in 1585. Dr. Zimmermann, continuing, states that during the fourteenth century, and before that period, it was generally known that numerous weavers of linen were found in Silesia, as no land existed at the time without this industry, but it is not known that foreign markets were supplied. He also says that Korn's collection of records gives, except a few trade laws of the larger towns, nothing of linen-weaving; also the fairly well arranged chronicles of the towns of the Silesian mountains contained no information about the influence exerted for this industrial branch by Charles IV. (Roman Emperor and King of Bohemia, born 1316, died 1378); a perusal of the documents in a large number of town archives revealing nothing of interest to a would-be historian of the linen trade. Everywhere during the fourteenth and fifteenth centuries mention is only made of the woollen industry. Regarding English authority there is, in MacPherson, Vol. I., p. 652, date 1457, certain references to exports of Prussian flax, thread of Cologne, canvas and buckram. The first accepted records of the linen-weaving in Silesia belong to the end of the sixteenth, and course of the seventeenth century, and at this time the trade, from being purely domestic, sprang into one of export, and assumed, during the eighteenth century, very considerable importance. Zimmermann, quoting from *Beschreibung von Schlesien* (1746, VI., 6x), and referring to the town of Jauer, says: "Before the Thirty Years War Jauer was flourishing. It was almost the only depôt of the Silesian linen commerce, had great activity, and many rich trades-people who carried on an extensive commerce with other lands." Thus before 1618, when the war began, there is evidence of an export linen trade from Silesia. The following is a translation of a description Dr. Zimmermann gives of the mode of conducting business at the time: "The greater number of the citizens were engaged in the linen and yarn trade. The weavers worked in the mountain villages, and brought their woven goods to the town. The burghers bought these goods and finished them in their own bleach-fields, which lay at considerable distance outside the walls. The bleaching plains belonged to the town, and were given to the burghers in a sort of fee-farm or hereditary lease. Very soon, however, the owners forgot the old conditions of tenure, and disposed of the ground freely, buying and selling the same. Against this there were many complaints. The Council, which always took into consideration questions relating to the public well-being, with delegates of the citizens, had at different times given the matter their attention, but did not seem to be in a position to compel a resumption of the original conditions. The finished goods were not exported by the burghers direct, but removed to the agency depôt of the Dutch and English. These depôts were to be found in large numbers in all the important towns in Silesia. These agencies paid for the goods mostly in cash, and sent them, through export houses, to their own countries. From there they were sent in large ship-loads to Africa and America, to serve principally as clothing for the slaves. The conjecture is perhaps not unwarranted, that the Silesian home industry has to thank the foreigner for its activity. Lured by the prospect of a not too difficult incidental work, many a small farmer had set up his loom and learned how to weave the ordinary linen. So long as the foreign merchants bought the goods from the burgher-traders and not direct from the weavers, so long were the foreigners well thought of, but when the latter sought to dispense with the intervention of the traders a great hatred was excited."

The account goes on to say that in 1601 the merchants in the Duchy of upper and lower Silesia petitioned the Emperor to bring in measures against the foreigners, as without help they would be ruined. From public documents it was found that, before this time, similar complaints had been brought to the ears of the Emperor, and he had appointed a commission in Breslau to inquire into the rights of the grievance. Measures were proposed, amongst others, one of laying a double duty on all linens exported by foreigners, but on the other hand it was represented that without the foreigners the commerce of Silesia would be but poor. The home merchants were, in the greater part, not rich enough to have the goods conveyed to Amsterdam or further on their own account, especially considering the insecurity of the roads and water-ways. So a law was brought in by which it was enacted that the export duty to be paid by the foreign merchants for goods sent should be higher than that paid by home merchants, but many of the Silesian merchants were not agreeable to this. They complained again to the Emperor, who ordered another commission of inquiry on the 4th August, 1604. The various towns, however, brought aid to themselves in the chief points. In Jauer the competition of the foreigners was much felt before the outbreak of the Thirty Years War. The town groaned under the heavy burdens; the foreigners remained, however, free from such burdens. The worse the position of the burghers became, the better was the trade of the foreigners. They bought nearly all yarn, linen, thread, and other commodities, and paid for them in bad money. The matter was, in 1622, brought before the Courts, and it was resolved that—

1st. Every foreigner trading in Jauer must remain in the town during only four days of every two months.

2nd. Linen, thread, and yarn, etc., must be purchased only from the burghers of the town.

3rd. If a foreigner wishes to buy, and a burgher comes along wishing to buy the same goods, the latter can claim right of pre-emption.

4th. No foreigner shall serve several commissions.

5th. They shall not rent houses or rooms.

6th. No burgher may sell to a foreigner any brown linen.

7th. No burgher to bleach or finish any linens which he has not himself sold to the foreigner.

Besides this, it was forbidden for a foreigner, on account of the prevailing high prices, to purchase provisions in the town, so that a still further rise might be hindered. It is not known whether these experiments had the effect of freeing the burghers from the competition of the foreigners. We have taken the liberty of translating the above from Dr. Zimmermann's work in order to allow the reader to understand the business relations in the Silesian linen trade at the end of the sixteenth and beginning of the seventeenth centuries. The cheapness of labour, and consequent cheapness of production, tempted the capitalist merchants of both England and Holland to establish large connections in the very midst of the Silesian linen-producing centres. Without doubt, men accustomed to keen trading would incline to reap all profit by dealing with the weaver direct. The drastic regulations made by the burghers were well drawn up to secure lack of competition. No brown goods were permitted to be sold, so that all bleaching must be carried out on the local greens—no rivalry amongst the bleachers could occur, as each one was but permitted to finish the goods he himself sold. It is a pity that no report of the results of these laws has been handed down along with information about the reprisals of the foreigners.

In that valley of the Riesen Gebirge, stretching from Hirschberg to Greifenberg, a considerable linen industry was in existence in the beginning of the seventeenth century, and has continued with success up to the present day. The goods made, at the time we write of, were largely lawns, and were distributed through foreign export houses in the manner described. The Thirty Years War, or series of wars, which began in Bohemia in 1618, and only ended with the peace of Westphalia in 1648, engaged the best, more rightly the worst—at any rate, the greatest—energies of the people. When peace came, an extension of manufacture was permitted, which spread along the valley above mentioned to Lauban on the one side, and Landeshut on the other, the latter town and Schmiedeberg and Bolkenhain becoming important as the centres of the industry in this neighbourhood. One effect of the war was the voluntary departure of the foreign agencies. They are scarcely afterwards mentioned, as from that time they gave up their direct trading and arranged with the Silesian merchants to deliver the linen goods at the several ports to their order. Another result of this calamitous war was the complete destruction of the important linen-manufacture in Jauer and district—a disaster from which it never recovered. During the same period, in 1672, 30,000 Bohemians were compelled to leave their homes in order to maintain their faith, and some settling in Lusatia and in parts of Saxony and Silesia, began, or at any rate developed, the linen trade there. For similar reasons, towards the close of the seventeenth century, came a number of French Huguenots, and established themselves in Upper Silesia, so the new century began with greater prospects for the already large Silesian industry, which rapidly became the staple. Many and varied classes of goods were made to suit the several markets, by far the greatest export trade being to England, Holland, France, Spain, Portugal, and the West Indies. Taking Silesia's exports to all countries, brown linen formed but a very slight proportion, proving the extent and value of the bleach-greens, and this was largely due to the careful treatment of the goods. We have seen how prosperity in our home trade (Scotland and Ireland) induced a number of fraudulent practices, which, but for legislative interference, might have ruined the industry. Germany seems not to have been a whit behindhand in this respect. The following is what Dr. Zimmermann says: "The frauds began with the farmer and flax merchant. Through them the spinner received less flax than was bargained for; owing to his continued low profits it remained but possible for him to retrieve himself out of the yarn. He therefore used a shorter reel than usual, or delivered several threads too few. If the yarn merchant discovered the fraud, the poor spinner had to make amends. But the yarn merchant was in general not more honourable towards the weaver, who was obliged to save something in the length and breadth of his web, if the dearly paid yarn did not contain its proper length." Dr. Frahne, in his work, *Die Textile Industrie im Wirtschaftsleben Schlesiens*, writing on these frauds, says that in 1724 a severe law was enacted against them, entitled "Linen and Law Regulations in the Duchy of Upper and Lower Silesia." The pillory, the whipping-post, and expatriation were to play their parts in thwarting these deceits. Although Silesia was building up a large linen industry, she was apparently not able to keep pace with the yarn-production, which became a tremendous industry, not alone supplying other German states, but forming a considerable item of export to foreign countries, notably England and Holland and France. Dr. Frahne, speaking of the use of the hand-spindle and the spinning-wheel, in a footnote on the subject, says of the latter, that although invented in 1530 by

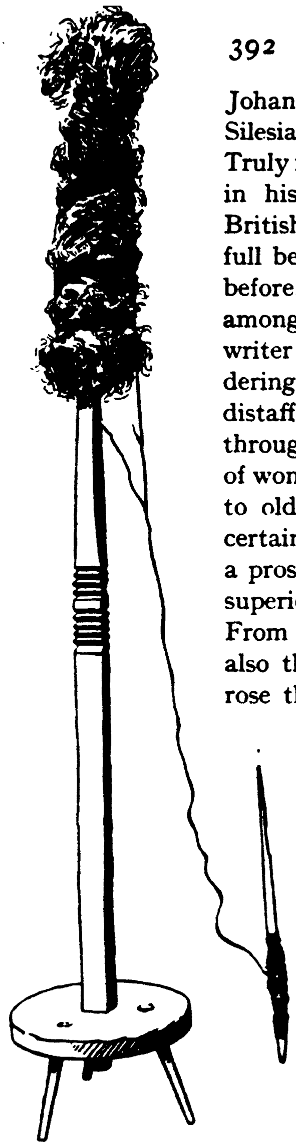


FIG. 37.
STAND DISTAFF AND SPINDLE, BUCHELSDORF, POSEN, GERMANY.
Still in use, and is an interesting survival. In Germany, with her modern practice in all industrial branches, this thousands of years' old method still persists.

Johann Jürgens, was only found in general use in Silesia in the second half of the eighteenth century. Truly it may be said that a prophet hath no honour in his own country. Holland, France, and the British Isles, in succession, had experienced the full benefit of Jürgen's wheel more than a century before. But old customs die hard, especially among primitive people. A few years ago the writer procured from Buchelsdorf, in Posen, bordering the district we are writing of, a stand distaff and spindle, such as those in common use throughout those parts to-day. It is not a matter of wonder that an old-fashioned folk should adhere to old-fashioned methods, but it is wonder of a certainty that by such methods they could conduct a prosperous export trade, with freight, tariffs, and superior modes of manufacture against them. From time to time the yarn export of Silesia, and also that of flax, were forbidden, but as stocks rose these laws were relaxed. The neighbouring Prussian states paid an export duty of somewhat over six shillings per *schock* of twelve bundles. When harvests were good, and flax abundant enough to permit of export, a small duty was also laid on that raw material. The laws above referred to were instituted to keep both flax and yarn at home, and thus encourage and develop the weaving industry. Silesia was always a good flax land, and the neighbouring states, where little was grown, relied largely upon this source for flax or yarn, or both. Yarn markets were held in many of the principal towns. From an early period spinning-schools were instituted in various districts. This matter became one of legislative enactment in 1765, just two years after the Seven Years War, which finally confirmed

Silesia as a Prussian province under Frederick the Great, who used his best efforts to make prosperous the land he had conquered. By the regulations made, each farmer was compelled to sow a greater quantity of flax than formerly, as plenty of raw material was necessary. The administrative authorities were compelled to see that only new seed was bought and sown; any old seed was crushed for oil (flax-seed kept over, it may be remarked, loses in fertility) . . . . They were to use their best endeavours in every direction; the farmers were to introduce better modes of handling the flax, which was not allowed to be dried in ordinary baking ovens, but in special municipal or parish ovens erected for the purpose. The Government officials were to ascertain that only well-hackled and clean flax was given out to be spun. The steeping was to be carried out on the Austrian plan, by which a whiter and softer flax was produced.

Although parents in many districts encouraged their children to spin well, generally the spinning was bad, because no advice was given in the somewhat difficult manipulation of the hand-spindle, which was in general use, and the effort was merely to spin as much as possible. The farm servants got poor flax, and span it badly in order to get it quickly done. On this account, spinning-schools were arranged for all the villages in Silesia and Glatz, except in those where only weavers lived. As the conditions in the various villages differed, the schools were to be arranged by the landed proprietors and Courts of Justice, under sanction of the administrative authorities. The following recommendations were made:—Large and spacious rooms were to be used where, eventually, teacher and taught might live if required. In the large villages several schools were stated to be necessary, amongst which the scholars would be divided. It was recommended that the ordinary national school-mistress should serve as spinning teacher, and use the day school for a spinning-school as well, but it was advised, if possible, to build special houses. Instruction was also to be given in hackling. All the children who could be dispensed with at home were to be taught in these schools, particularly in the winter evenings, from 6 till 9 o'clock. In each village proper instructors were to be placed in proportion to the number of scholars. If in a district no suitable teachers were found, they were to be brought in from other districts, to remain permanently, or for a time. Wheel-spinning was considered better, but at the time it was not desirable to introduce this mode generally; the instructors were required to influence their pupils towards this end as much as possible, taking into consideration the conditions in each district. In each village children and domestic servants, of both sexes, were to learn spinning. The children up to seven or eight years were to be instructed by their parents, but were allowed, outside their proper lesson time, to go to a spinning-school. Children above eight years must, under penalty, go to a spinning-school. Each scholar to remain at school until he or she could spin properly; this was judged by samples submitted to the authorities. No farm man-servant under thirty years of age was allowed to marry until he had learned to spin. The same regulation applied to all village girls and farm maids, and each farmer's daughter, before her marriage, was required to possess a spinning-wheel. The spinning instructor had to supply the necessary appliances; if he was too poor, the parish supplied them. Under penalty each school was required to have one spinning-wheel. As a rule the parents, householders, and farmers gave the flax and kept the yarn, but the instructor was allowed to supply the flax and keep the yarn. The administrative authorities were required very thoroughly to inspect the schools, besides which, in each district, a Government and a local official had to make inspection each week, and every month there was a chief inspection. The administrative minister in his district was required to call together the yarn collectors, or petty merchants, to examine into their knowledge of yarn and advise them strongly never to purchase poor yarn. The inspectors were required to ask these men if the yarn in the village was good. The magistrates were to examine the yarn in the markets and to warn merchants against bad quality. This was also enjoined upon the weavers and bleachers. As these regulations embodied means of carrying out desirable ends, it was hoped that everyone would regard them in a patriotic, unselfish, and thankful spirit. The fines imposed were given to support the spinning-schools.

These autocratic and very drastic orders were difficult to enforce, and required to be again impressed a year afterwards. This not helping matters, a few months later the authorities received an injunction requiring them to take notice that the laws must be observed, as the King was not inclined " to overlook further the fact that, that which was commanded for the best interests of the country had been carried out with such lack of zeal as to cause the many salutary regulations to be, if not totally disregarded, but very imperfectly fulfilled, and this was mainly due to the manner in which the administrative authorities had done their work." It was ordered that the schools should be visited at unexpected times. In spite of all injunctions another decree was required, to be followed by others as years went by. By a stubborn seven years' fight against great odds, Frederick had won Silesia, and it would hardly be expected that the same man would submit to any laxity in the government of the province. He has been called the Father of his people. The Silesians may have looked upon him in the light of a step-father, and rebelled against his authority. It will be remarked that the introduction of spinning-wheels was attempted by making it compulsory that one, at least, was to be kept in each school for practice; the fact that no farmer's daughter was allowed to marry until she possessed a wheel was an undoubted incentive to get one. The same incentive would prompt the farm servants to become proficient in the art of spinning. It may appear strange that clumsy-handed men were required to spin; this delicate art has been performed by woman since it was known. The following extract from *Die Göttliche Ordnung in der Veränderungen des Menschlichen Geschlechts*, published in Berlin in 1775, gives the reason: "I always reflect with pleasure on the laborious Silesians, and the inhabitants of the neighbouring provinces. These people are temperate in their living, and industrious; in winter they do not sleep away their time, but all spin, men as well as women, without any distinction of sex; none of them are ashamed of this occupation. The peasants in the Mark are of a different way of thinking, and much less industrious. The men would consider spinning a disgrace, and spend the dark evening and morning hours either in bed or hanging over a warm stove." Persons of rank, as well as the peasantry, learned to spin. Dr. Zimmermann gives a list of the spinning-schools in the department of Breslau, showing the number in each town. From this we find that in 1783, in this district alone, there were 3,169 peasants' schools, and 159 for persons of rank. After the war the bleachfields were rapidly put in order again, and to encourage them and keep them in full work it was ordered that no yarn be bleached outside the province. Silesia had for years been noted for its bleach, and in order to maintain this reputation regulations were devised.

It was ordered that no man should be employed as bleaching foreman who had not a certificate of proficiency. A formal examination was to be gone through, before three competent bleachers, before a certificate could be given. The body of merchants in each town were to name the examiners of yarn bleachers. Heavy fines were to be enforced in case of frauds. If a bleacher died, his widow could continue the business, but only on condition that she employed a competent bleaching manager. No foreigner to be permitted to work in the linen bleach-greens; he was to be allowed, however, to work in the yarn-greens. Brown linens, when delivered, were to be at once examined and steeped, and particularly with yarn every damage was to be avoided. If linen delivered to the greens turned out bad, the merchant was to be informed within ten days; in the case of yarn, fault had to be notified within fourteen days. Bleachers were only permitted to receive so much as they could comfortably and well bleach. Regulations were also made as to the size of the vats, and the quantity of linen or yarn each should contain. Bleachers were to be very careful in the use of lye; they were to use neither salt nor lime, and in bleaching yarn no potash. Cloth was to be milled only once, as otherwise it would lose in breadth. It was also directed that the goods should be more carefully watered, and that care should be exercised to see that they did not freeze in winter. If these regulations were followed it was considered that a good bleach could be obtained in nine, or, at most, ten weeks. If the bleacher delivered goods not full white and faultless, the owner could have them examined by two independent merchants, and the bleacher had to pay the cost of the goods being again bleached. Bleachers were enjoined to emulate the bleaching of Haarlem in Holland, and prizes were given. But, despite all the efforts made, according to Dr. Zimmermann, the achievements of Holland were never equalled; the finer kinds of linen being always sent to that country to be bleached. From the same authority we learn that, during this time, there was an uninterrupted complaint amongst the weavers regarding frauds and unjust dealing. The condition of the weavers had become so fearful that many of them removed to the plains from their homes in the mountain districts, and, but that they were Protestants, would willingly have gone into Bohemia. The merchants were admonished to deal more humanely with the poor people, but no help was derived from this. The merchant made complaints of frauds on the part of the weavers, and so in order to detect these, it was recommended that each web should have the weaver's name stamped on it distinctly. The linen laws provided for this, but the enactment had not been observed. To the complaints of the weavers the merchants replied that if they would but deliver honest goods, and stamped, the trade would be bettered. Measures were taken against the constant use of false Bohemian reeds, but with little effect. The complaints continued, and increased in volume, so that when the minister came to visit the Giants' Mountains (Riesen Gebirge), in 1768, he was bombarded with grievances on all sides. Commissions of inquiry were appointed, the members of which had to penetrate, in the midst of winter, into the snowed-up valleys. In the summer the people were at field-work, and therefore that time would have been unsuitable for inquiry. The commission met only in a few districts. The reports stated that reeds of Bohemian origin were found in great quantities, and in four districts of the county only in one village were proper reeds in use. The Bohemian reeds were certainly very cheap, while the Silesian reed makers, who were compelled to use Bohemian cane at dear prices, with duty added, demanded a higher rate. These reeds, made of thin split reed or cane, are used for dividing the warp-threads in a loom, and if falsely made will cause a corresponding falsity in the cloth. The inquiry elicited the fact that a number of merchants desired the linen to be woven with these false reeds. The yarn merchants cheated the weaver in his purchases, the former being often cheated by the spinners—especially the Austrian. The regulations made that linen must not be rolled, but lapped, were nowhere observed. A number of propositions were made regarding the better enforcement of the existing linen laws, the appointment of proper inspectors in the various districts, etc. The result of the inquiry was, however, the proclamation of a new law, confirming the linen laws and imposing greater penalties for detected faults.

In 1769 it was proposed to strengthen the industry by offering prizes, giving advice and cash advances, so that weaving might be encouraged in every village and in every house. The difficulty of the disposal of an increased output was naturally thought of, and an extension of sales direct to foreign countries advised. It seems that the King himself had visited the Silesian mountains in summer, three years before, and had entered into a long conversation with some of the Hirschberg linen merchants, so becoming acquainted with all the requirements. He raised amongst them at that time a great desire towards a direct trade with Spain, which he promised to support with all his power. Seeing the King's inclination, he was asked to make an advance of 100,000 thalers for financing this project. The King, although seeming to think the amount was high, was not disinclined to give it, and demanded advice in the matter from Schlabrendorff, the Silesian minister. Dr. Zimmermann adds that it is to be regretted that further memoranda on this subject are not forthcoming. Conjointly with the encouragements given to weaving linen, that of damask engaged the attention of the King and his ministers. It would appear that before the Seven Years War the weaving of damasks had been no inconsiderable industry, but that during that time many of the weavers in this art had fled, and many had died. Before the war the inhabitants of the mountains had been induced to learn damask-weaving on better lines, and for their encouragement an import duty was laid on all damasks and fine linens. At the end of the war, the merchants in Hirschberg and Schmiedeberg were required to bring back as many damask weavers as had emigrated, without contradiction of this mandate. One of the war ministers was sent to the mountains to inquire more particularly into the conditions of affairs, and found the people in great need. During the war no one had cared for them. He compelled the merchants in Schmiedeberg to make a payment of 1,950 thalers (£292) for their immediate wants, as well as 306 sets of clothing. At the same time the Glogau chamber asked the body of merchants in the mountains to procure weavers in place of those who had left. This request proving fruitless, the war minister was commanded to bring in seventeen families of damask weavers at the cost of the merchants. This was difficult of accomplishment, as Saxony had strongly forbidden any emigration. Besides, in the towns, it was considered that a number of these damask weavers were worthless, and had become too lazy to work; the project had, therefore, to be abandoned. A trial was next made to induce the mountain people themselves to become experts in damask-weaving by offering them freedom from military service.

New difficulties were experienced. The damask weavers made constant complaints to the Silesian minister that merchants refused to take their goods, and he, falling into a passion, said that if the merchants would not freely do as he desired he would compel them. He ordered the war minister to place the house of each merchant who did not comply with his instructions under police supervision, and threatened that if this were not sufficient, an embargo would be laid on all such merchants making deliveries of linen goods. These steps were only taken against the merchants in Hirschberg and Schmiedeberg. In Greifenberg, where damask-weaving existed to a fair extent, things went better, for here the merchants had established one of themselves, who took over the entire control of this industry. He gave the yarn to the weavers, took over the cloth when woven, paid the weaver for his work, and saw to the disposal of the goods.

The war minister carried his threatened proceedings into action, and reported that he had placed police supervision in the houses of certain merchants, but the result he expected did not follow. The merchants refused compliance, and asserted that the proposed encouragement of damask-weaving would ruin their lawn industry, and the minister retaliated by commanding the Custom House authorities on every side to retain any deliveries of linen goods sent by these merchants. Complaints from the merchants followed, and the minister replied that he had fully sanctioned every step that had been taken, and that unless the merchants complied with his orders, by creating sales for the weavers, he would bring a military force to compel them. Notwithstanding these threats the merchants remained obstinate. All that they consented to was that each should give a certain sum towards the support of the damask weavers, the total amounting to 2,200 thalers (£330). The minister himself paid a visit, but was unable to come to any terms with the merchants, who told him they would be ruined if they were compelled to sell dear damask, for which there was no demand ; they told him as well that the weavers who complained were lazy and did not want to work. This continued opposition was very badly received by the great man, who was so incensed that he afterwards forbade the two chief spokesmen to attend at any meetings of the Hirschberg merchants, and at the same time sent them a letter in which, amongst other matters, he stated that "having become aware, during his stay in Hirschberg, of the sentiments of its merchants, and having observed the stubborn way in which one Mr. Hartmann had expressed himself on that occasion, he declines to communicate any further with them directly." He further informed them that he had been in Grosschinau, the principal seat of the Saxon damask industry, and had spoken with many of the merchants in Fittau, who had assured him that the demand for damasks was so great that Saxony alone could not supply it.

Angrily, he continued, "the Hirschberg merchants are, indeed, exceedingly wise, when their wish is to excuse the obstinate resistance which they have opposed to the royal regulations made for them, and they have had the impudence to contradict their superior with empty words and meaningless expressions, solely to make an ostentatious display of their resistance."

A Schmiedeberg merchant saw opportunity for enrichment, and declared himself willing, under certain conditions of cash advances and privileges, to undertake the necessary financing for the damask weavers. His proposal being agreeable to the minister, he was entrusted with 6,000 thalers (£900) for six years, free of interest, at the end of which time it was intended that the money should be repaid. He began his financial arrangements with unfavourable experiences. According to him the weavers worked badly, and at too great a cost; they, on their part, complained that the payments were poor and tardy. In a comparatively short time a fresh advance was asked for. The minister was not disinclined to grant it, but first made inquiries, and the answers to these justified the offer of a further sum of 1,000 thalers for some months. But new complaints were made by the organising merchant about the lack of sales, which, he said, kept the money advanced locked up. The minister's tart reply was to the effect that if he chose to sit quietly in Schmiedeberg he would certainly create no sales—his duty was to travel about and find customers. The result of this experiment was very unsatisfactory, but in spite of disappointing experiences the Government persisted in encouraging this branch of the industry. Premiums were arranged to be given to foreign weavers who would be willing to come to Silesia, and no opportunity was missed to bring into operation the ordinances of the King, who expected much from the establishment of this industry. In one district orders were issued to bring in 150 damask-weaving families within six years, and find them employment. The minister announced that if, spite of the many and various means employed for its encouragement, the damask industry in Silesia could not be brought to a successful issue, in opposition to that in Saxony, the consumption of Saxon damasks would be forbidden in Silesia and other provinces. A trial was again made with the Schmiedeberg merchant, who stated that if he could be secured with orders for 4,000 thalers yearly he could keep the weavers in employment. Merchants in the various towns were strictly enjoined to purchase Silesian-made damasks to this amount, and strong efforts were continuously made to forward the trade, which, notwithstanding, made no headway. It was alleged that the fault lay with the organiser, and when it was determined to dispense with his services he conveniently died. His widow was permitted to carry on the business until a proper successor was appointed. A Zittau merchant, named Lange, appeared to the minister to be a suitable man for the purpose, and he was offered the position. His terms were—12,000 thalers, free of interest, for ten years, a yearly salary of 600 thalers, and 6 per cent. on all exported goods. The provoked minister, on these demands, broke off the negotiations, and informed the Glogau chamber on 4th August, 1768, of his wish that the Schmiedeberg and Hirschberg merchants should take over the direction of the industry, for which they would receive 6,000 thalers against solid guarantee. The compulsion regarding the purchase of damask was to cease, because of the outcry raised against it, but the merchants refused to entertain the proposal. The Government was now in a peculiar position, out of which there seemed no way clear, as no one could be found to undertake the business. In these difficult circumstances the minister decided to rely on the emphatic declarations of the King, and effected a cabinet order which commanded the Hirschberg and Schmiedeberg merchants to purchase the damask. With the royal decree two high officials were sent to the merchants. This step was, however, unsuccessful; these officials sent a report from Hirschberg stating that, in spite of all their exertions, they had, in vain, tried to win the merchants, a large number of whom stated they would send a petition to the King protesting against the regulations. If they had sales for damask they would purchase, otherwise not. There remained now nothing but compulsion. The minister was, however, not without hope. In October he sent a member of the War Council to the mountains to invite the body of merchants to appoint one of themselves (similar to what had been done in Greifenberg) to take charge of the purchase and sale of damasks. If they should remain stubborn he was prepared to hand the business over to a merchant named Klaussen, who had declared his willingness to undertake it, and who would work at the merchants' risk, the merchants at the same time having the financial obligations. In the meantime the Hirschberg merchants had sent a complaint to the King, stating that the linen trade would suffer if the people were compelled to buy damasks. This was referred to the minister, who disbelieved in the danger, and his answer took the form of the visit of an official with instructions to make it clear to the merchants that they must cease protesting and carry out his commands. This did not improve the situation, and discussions went on all through the winter months. Another official visit was paid at Christmas, when the weavers were advised to produce only good, well-made cloth, and themselves prove that a demand for the goods could be created. The effort was fruitless; complaints of the weavers continued, and when the King came to Silesia in the summer of 1769 he was bombarded with petitions. The workers declared themselves to be perishing of hunger. The King's recommendation to the minister was to give aid to the people in some way, and if matters could not be arranged otherwise, to seek a new undertaker. The functionary, however, seemed powerless to advise. He made many trials, but up to the time of his death, in 1770, no compliance with the regulations had been obtained. From the beginning of this conflict to the death of the Minister Schlabrendorff, the number of the damask weavers had remained practically stationary, at about sixty-five. The next two years were years of great distress in the mountains, largely owing to failures in the crops. Grain stores were opened, and Frederick the Great has always been remembered owing to the fact that he made arrangements for the price of rye to remain stationary at two thalers the Prussian bushel, the price in Bohemia and Saxony being at the same time five thalers. The poorest were given meal on condition that they paid in cash for it in two years, or in work at fortifications.

The new minister began his reign by taking an interest—so far as the linen industry was concerned—in the growth of better flax. The question of better spinning was brought before him, but he seemed disinclined to attempt any reform. The appeal for improvement was made from the county of Glatz, one of the existing evils indicated being the too slow introduction of the spinning-wheel. It was stated that the wheel was always recommended by the spinning-schools, and in that way had become, in a manner, naturalised; but the number of wheels was exceedingly small when compared with that of the older hand-spindle, which held its own up to the beginning of the nineteenth century, in spite of the fact that much less, and more unequal, yarn was produced by that method. In speaking of the German spinning-schools, Dr. Frahne remarks that, at the beginning, they served more as a source of fellowship and conversation than for any real teaching. Warden, quoting from Andrew Yarranton in a publication issued by him in 1677, describes a German spinning-school: "Around a large room a number of benches were placed, in which sat, perhaps, two hundred children spinning. In the centre stood a pulpit, in which the mistress sat with a long white wand in her hand, watching the spinners. When anyone was seen to idle she was tapped with the wand, but if that did not produce improvement in conduct a small bell was rung, which brought out a woman, to whom the offender was pointed out, and who took the idler into another room, where she was chastised. All this was done without speaking a word; and this training, the author thought, would do good in England, where the young women were too much given to chatting. In an adjoining room a woman prepared and put the flax on the distaffs, and when a maid had spun off the flax the bell was rung, the rod pointed to her, another distaff given, and the bobbin with the threads was removed and put into a box with others of the same size to make cloth. As the children learned to spin finer they were raised to higher benches, and great care was taken to sort the yarn and keep it uniform, and so to make regular cloth."

In 1774 the Silesian industry became brisk, and the difficulty of finding weavers being felt, looms were given to any too poor to purchase them. It was even proposed, as an incentive, that no one should be allowed to marry until he could weave. The more the industry grew, the more necessary it was considered to improve it, and to bring into active operation the various linen laws which had been relaxed. The county of Glatz promulgated certain regulations whereby the county should be divided into nine districts, each under an inspection committee, to see that the regulations were fully carried out. The weavers of a district were to be enlisted in a union, a dismissal from which was the punishment for grave irregularities. The weavers being thus, collectively, a body under organisation, were able to control matters relative to their trade. Regulations regarding the quality and exact quantity of yarn were enforceable. The weavers would be ensured fair wages so long as their work was honest. The Silesian Government, after some demur, acceded to these regulations. Then came the war of the Bavarian succession in 1778–9, known as the potato war, in which the Prussians and the Saxons were opposed to Austria. When peace was declared, the opinions in regard to these regulations had altered. The merchants, on the one hand, naturally objected to a strong union of weavers, and the latter soon began to chafe under what they considered a too keen supervision, and the new rules became inoperative. In 1782 a petition was sent to the King on behalf of the yarn merchants, asking him to permit an export trade from Silesia, showing that the Upper Silesian yarn was suitable for the weaving trade of Holland, and that the country was receiving large quantities from Bohemia, and that, as a matter of fact, yarn was being smuggled out of Silesia, and thereby the export duty was lost. The King replied by placing stricter watch at the boundaries against the possibility of smuggling, and stating that where there was no yarn there could be no linen, and that it was useless for them to tell him that the yarn could not be woven in the country. It was then pointed out to him that the Upper Silesian yarn bleach-yards would be ruined unless an export of yarns be allowed. These greens had been established when yarn, but only bleached yarn, was permitted to be exported. The King's reply was short—simply the words, " The export of yarn is absolutely forbidden," and the yarn bleacheries had to stop work. Looking at this act of Frederick in the light of the improved linen trade generally, he seems to have been rightly impelled, if we may judge by the rapid and maintained growth of Silesian exports of linen goods, which in the year 1781–2 amounted to close on 3¾ million thalers' worth, and in 1783–4 to the value of over 5½ millions. Silesian yarns, on account of their cheapness, were eagerly sought by Holland, England, and other manufacturing countries, where spinning was not carried on to a proportionate extent. To the yarn bleachers it was a matter of importance to secure this trade, apparently an easy and profitable one; but, as Frederick justly argued, if the yarns left the country the weaving would follow. The export returns show that the yarn, being compulsively retained in Silesia, was woven there to the general benefit of the linen community. It required an amount of energy and push to accomplish all this. The King remained firm in his resolve, although petitioned to allow at least the coarse yarns to be exported. He directed that these should be worked up in making creas for the Spanish trade, and instructed the Minister Hohen to advance this industry with all his energy. Hohen declared that it was quite impossible, and His Majesty replied that his objections had no weight. There were many poor towns without any weaving, and nothing was to hinder the introduction of the industry there. If only the necessary trouble were taken there would remain no overstock of yarn.

The export of yarns remained totally forbidden until the King's death in 1786. The table of exports of linen goods from Silesia gives but three denominations; namely, white linen, brown linen, and lawns (incidentally it may be remarked that damask is nowhere mentioned). It is not possible, therefore, to distinguish if the creas manufacture accounted for any of the increases. In the countries of destination, Spain is grouped with England, Holland, France, Portugal, and the West Indies, so here again we are at a loss to discover if the Spanish trade had made any growth. In the Greifenberg district most of the creas were made. The improvement of this manufacture was largely due to free export. In Schmiedeberg there was another important creas manufacture. In 1785 the King gave 10,000 thalers for purchasing houses and looms for the creas weavers. Besides this he had made an offer of 30,000 thalers to two undertakers in Striegan. The damask-weaving, after the death of Schlabrendorff, was only kept going at the will of the merchants—it never became large, and the workpeople did not improve. Another trial was made to induce the merchants to give the people work, but without any result. A company was then formed to run the damask industry in the mountains, and to them was promised a monopoly in all Silesia, certain duty and tax reductions, and 6 per cent. bounty on export. 15,000 thalers was thought to be sufficient working capital, but it was found that from 20 to 30,000 thalers would be necessary, and an effort to raise the larger sum failed. Little improvement in output took place until one of the Schmiedeberg merchants was induced to take the matter up. He bound himself to take over fifty damask weavers for four years on condition of a capital of 20,000 thalers, he receiving 800 thalers a year salary. The King was pleased that the business was at last on a fair footing, and expressed hopes that the industry would be able to compete with Saxony. Every encouragement was given in the way of providing proper designs, making samples, appointing commission houses to sell the goods, etc. Wages of the weavers were arranged according to a scale for one table-cloth with twelve serviettes, for coarse, middle, or fine goods. At first weavers were engaged for twenty-five broad and fifty-five narrow looms, but soon there were thirty-six broad and seventy-three narrow looms in Schmiedeberg, Hirschberg, Tiefhartmannsdorf, and Grüssau. At the beginning the business appeared to be going fairly well, but, in a short time, complaints began to be made that the weavers were embezzling the yarn, that the undertaker, Fritsch, did not know where to sell the goods, etc. Further efforts to raise capital failed, owing to the fact that the original capital depreciated considerably, some of the shareholders threatening to sell out at any price. The undertaking was in constant need of money, which the Government had to advance. The undertaker, Fritsch, was dismissed, and another, named Sinapuis, placed in his stead, made immediate claim for advances. There was no cash in hand, and the undertaking was in debt. A sum was granted because it was feared the needy weavers might sell the looms. Requests for money became incessant, Sinapuis complaining of the want of reliability in the weavers. The stock contained goods of too fine a quality, the samples were old and without taste; 1,600 thalers were required in excess of wages for the fixed charges alone. In 1777 Sinapuis proposed the absolute prohibition of foreign damasks into Prussia, and stated that, without an additional sum of 10,000 thalers, it would be impossible to carry on the business. The minister desired to sell the share, but no sympathy was shown towards this movement, and the position of the undertakers became gradually worse. At the end of 1777 the stock was valued at 28,000 thalers, against which there were liabilities, 18,350 thalers share capital, and 10,129 thalers of debts. Sinapuis now declared himself prepared to take over the business if certain shares in the hands of the founders and of the chambers were abolished, and the stock sold to him at a low value. The Glogau chamber was in favour of this, but Hohen delayed decision. In the meantime the undertaking met with a fresh loss through a dishonourable commission house, and, at the last, people were glad that Sinapuis was still prepared to take over the business. In March, 1778, the King gave him a grant, whereby he or his descendants should own the business for twenty years, with all the rights of the company. No new damask-weaving was to be introduced in the meantime. Freedom from taxes was allowed, as well as export duty, and an added 6 per cent. export bounty. For the same time all imports of foreign damasks were prohibited on that side of the river Weser. Holders of shares not abolished were paid in goods.

Still the undertaking made no forward strides, and very soon Sinapuis had to ask for financial support. In October, 1779, he declared it impossible for him to support any longer the thirty weaving families at that time working for him. Shortly afterwards he went to Breslau, and his creditors, taking this to be flight, stormed his house, but the debtor returned and asked to be allowed to pay his debts in goods. Hohen permitted a seizure of the stock, at the same time offering the business to the body of merchants, while it was proposed to take action against the undertaker as a swindler. Sinapuis was, however, permitted to make an arrangement with his creditors, and the next year saw the whole undertaking practically broken up.

From Dr. Zimmermann's work we condense as follows a table of linen exports from Silesia. The table is from official records :—

Years.	Value in Thalers.	Years.	Value in Thalers.
1748/49	3,542,811	1768/69	2,975,760
1749/50	3,650,138	1769/70	2,994,317
1750/51	3,935,724	1770/71	3,368,223
1751/52	4,625,599	1771/72	4,291,140
1752/53	4,341,227	1772/73	*
1753/54	4,335,266	1773/74	4,408,763
1754/55	3,309,647	1774/75	5,419,336
1755/56	3,771,175	1775/76	5,062,291
1756/57	3,943,084	1776/77	4,220,011
1757/58	3,503,411	1777/78	4,809,593
1758/59	4,210,941	1778/79	4,392,433
1759/60	4,954,225	1779/80	3,685,255
1760/61	5,402,571	1780/81	3,915,521
1761/62	1,123,338	1781/82	3,697,702
1762/63	3,954,284	1782/83	4,532,445
1763/64	3,221,030	1783/84	5,502,532
1764/65	3,817,706	1784/85	6,060,374
1765/66	2,974,988	1785/86	5,206,476
1766/67	2,857,799	1786/87	5,632,493
1767/68	2,892,039	1787/88	5,906,248

The ups and downs shown in the above table, due to wars and the results of wars in those turbulent times, when Prussia was laying the foundations of what she afterwards became, are in strong contrast to the peaceful, steady progress of the linen industry in Great Britain and Ireland during the same period. During the later years of the reign of Frederick the Great efforts were made by him to effect a

* The figures for 1772/73 are unaccountably missing.

direct trade between Prussia and linen-consuming countries. Prussian linens found their way to Spain and Portugal through the Hansa towns, but chiefly through England. Purchases made through these mediums were promptly paid. A trial, however, of a direct trade with Spain and Portugal elicited the fact that from six to eight months' credit was demanded; the merchants were disinclined to enter into such financial arrangement, even at an extra profit of 10 per cent. to 15 per cent., and were only too willing to return to the old conditions of selling through export houses for cash, leaving to them the gain along with the risk. An attempt to trade direct with the United States after the War of Independence proved equally futile. American sympathies at that time were in favour of France. To Italy, however, a considerable amount of direct export was carried on and increased, especially in the finer lawns. The trade was a safe one, as the Italians paid before delivery.

Two years after Frederick William II. began to reign, a new set of laws was brought in for regulating the linen trade. Advice on this question was sought and obtained from reliable merchants and officials. It was provided that the business of merchanting flax should only be carried on by those who received a concession, and who at the same time were judges of the material. Flax was to be sold by weight, and not by bundles, and each bundle so made up that inspection of the whole would be easy. No flax was to be allowed to be exported, confiscation being the penalty. Regulations were made regarding the spinning and reeling of yarn. The penalty for infringement of these was to stand with the head in an iron collar before the church door for two or three Sundays during one hour. Yarn factors were required to have licenses. This license gave the factor the right to buy and sell within a certain district, the purchases to be made in villages where there were no weavers, or in the yarn markets. The factor was only to buy regular yarn, and to point out all frauds. If he sold yarn improperly reeled, he was to lose both it and his license. He was only to be permitted to buy twelve "schocks" (144 bundles) at a time. If he exported contrary to statute he was to pay the value of the yarn, to lose his license, and to be imprisoned for two months. If a weaver discovered a fraud he was to receive the confiscated yarn.

Particular rules regarding reed making were also laid down. When reeds were falsely made it was usual to arrange them so that they were of correct pitch at the ends, but getting coarser towards the middle. The reeds, when made, had to be gauged by a police official, and sealed by him at both ends. The weaver was forbidden to use any but these sealed reeds on pain of the iron collar. He was required to weave in accordance with the directions of the merchant; all wrongly-woven cloth was to be cut up into lengths of six ells, so as to prevent exportation, and a number of rules were made for exact and correct weaving. No weaver was allowed to merchant his wares; he was bound to sell only in the linen markets, or to the merchants. Laws were made for those who inspected, measured, and stamped the goods. Properly made goods were to be stamped at both ends; goods wrongly made were to be cut up. The stamps, besides the exact measurement, had to contain the name of the weaver. Linen factors who had received concessions had liberty to sell anywhere, but only personally. They were not allowed to re-sell—their sales must take place only at the weekly town markets, and only to merchants of the town. They were not permitted to buy any goods not inspected and stamped. Regulations regarding bleachers were made which were, in effect, the same as those we have already cited in a former part of this work. The laws made in respect of the merchants referred to the proper payments to the weavers, and provided that no goods should be sent out stained or spotted. In each of the commercial market towns an inspector, who was a magistrate, along with two qualified linen inspectors, was to be in attendance on every market day to see that there was no contravention. Yarn was permitted to be exported at a duty of somewhat over two thalers per schock. These linen laws of 6th April, 1788, of which we have recorded but some of the salient points, were soon made a matter of complaint. The yarn factor said it was unreasonable to make him responsible for the bad quality of the yarn. The weavers had, naturally, constant friction with the linen inspectors and stampers, some of whom they chased out of the district. The plenary powers given to the magistrate-inspectors enabled many of these disputes to be settled. On the death of the Emperor Joseph II. the prospect of a war with Austria, the mobilisation of the troops, and the consequent buying up of food-stuffs, had raised the cost of living. The King was applied to for money to open grain stores, to supply flax, and to purchase from the weaver his goods, but the money chest was empty. Frederick William II. was not a man of his uncle's calibre—he kept the state in poverty, and died leaving it in bankruptcy. The only satisfaction given to the trade was the free import of flax: this in itself shows the unsatisfactory level to which flax culture had fallen. The industry continued in a low condition, prices of goods fell, while, at the same time, there was little yarn for sale, and that at high prices. At the linen markets in Liebau and Landeshut the weavers created disturbances; a serious riot occurred in the latter town in March of 1793. The weavers had complained of the distress occasioned by the low prices, when one of the merchants injudiciously shouted to them that they could feed on hay and straw. In an instant the whole market was in an uproar; the merchants fled to their houses, and left the mob to smash the market stands to pieces, and to kick the yarn about the streets. Then showers of stones were hurled against the windows of the merchants' houses—the crowd demanded that certain people should be delivered up to them. The police inspector and some burghers made a trial to appease the surging mob in the market, but were received with abuse. The town police, losing their heads, fled to their homes—some got hold of the bell ropes and sounded an alarm through the country side.

The weavers were complete masters of the situation, but all at once they left off their work of destruction and, uttering threats, vacated the town. Like lightning, fear spread through Silesia when it was considered that these peaceful, frugal weavers, who through so many years had patiently borne ills innumerable, had at last revolted, and a great fear was expressed that a general rising would result. The merchants were in great alarm. The minister was determined to put down agitation, and tried to secure the ringleaders, while the military was ordered to take up certain positions. On 29th March Landeshut was quiet, and the soldiers had gone to their night quarters, when the Bürgermeister received a letter from a magistrate in the mountain town of Schömberg, some miles distant, saying that it was greatly feared disturbances would break out at the linen market there the next morning. An officer, with a party of soldiers, came to Schömberg at nine o'clock in the morning. Soon the town began to fill with country people, most of them carrying clubs, but all was quiet until 12 o'clock, when the yarn market began. The few merchants present, gaining courage by the seeming quiet, demanded the customary high prices for their yarn. Immediately loud mutterings and complaints came from the thousands of people gathered there. They crowded round the yarn merchants, who fled and locked themselves in their shops. After a semblance of quiet was restored, four or five men were chosen to go to the Bürgermeister and lay their complaints against the yarn merchants before him. They promised to be quiet if the yarn merchants would consent to sell at reasonable prices. The few soldiers, not more than twenty in all, stood in the middle of the market with the crowd around them, while the negotiations in the town-hall were proceeding, when report came that the house of one of the yarn merchants had been broken into. The official in charge went to the house, a way being cleared for him by the soldiers through the shouting mob, and found the unfortunate merchant more dead than alive, and willing to make terms. With his consent the officer sold the stock of yarn in the shop to the weavers at the normal price. Then for a time there was quiet, but soon the house of another yarn merchant was attacked, and with the same result. This so encouraged the rioters that a third and then a fourth house were broken open. The merchant in the latter was, unfortunately, somewhat dilatory in coming to terms, in spite of the danger to his yarn stock. The enraged mob could not now be held in. Two fellows sprang at the merchant, caught him by the hair, dragged him into the street, and beat him with their cudgels. Two soldiers, who rushed between them and saved him from death, were attacked. One of these was ordered by his officer to fire in the air, but, as bad luck would have it, the ball struck the archway, rebounded, and wounded a weaver. This raised the tumult to the highest pitch. Unmindful of the guns they threw themselves on the soldiers, and seemed not to care that some in the crowd were wounded by the shots. The officer saw that immediate retreat was inevitable, and made his way with his men to the Bürgermeister's quarters. News of the defeat of the soldiers, by unarmed weavers, was reported through the country with many exaggerations. It was believed that 800 soldiers had thus suffered, and it seemed as if the whole of the inhabitants of the mountains would rise in insurrection. The Breslau Government demanded two battalions of infantry, 112 troopers, and two pieces of artillery to be sent. The Glogau garrison occupied the boundary between Löwenberg and Hirschberg, while General Von Gotzen took charge of the safety of the county, and the Austrian Government placed troops along the borders.

The narration we have given of these riots is but the very interesting account given by Dr. Zimmermann reduced into small compass. This author goes on to state that there was a deeper ground than the low price of linen allied to the high price of yarn, and that ground was the influence of the French Revolution. Secret agitators had been roaming for weeks along the borders of Austria, Saxony, and Silesia, and had found fruitful soil for their insinuations amongst the discontented weavers. There were meetings by night, forbidden books were read, and rebellious songs were sung in chorus. The expressions and utterances of the people were an echo of the French Revolutionists. The cry was "Vivat, long live the French," who were here the ideal of the discontented. In his report to the King the minister put all the blame on the low prices, and spoke lightly of the French influence. The merchants were enraged that they should be considered the authors of such a revolution, and spared no trouble to dissociate themselves from it. They painted, in glowing colours, the condition of the weavers, who, they said, were quite independent of the merchants, could buy the cheapest yarn and sell their goods to the dearest purchaser quite unhindered. If the yarn was high in price, it was owing to the avarice of the landlords. The Breslau Commissary was instructed to inform the yarn merchants that, without regard to consequences, the yarn must be sold at cheap rates. They were recommended to enlarge their stocks by importations from Neisse, and export was forbidden under heavy penalties. The minister wrote to the towns of Neisse and Liegnitz, then the principal centres of spinning, to send all the yarn they possibly could to the weavers in the mountains. But the troubles had reached a high pitch; and although the troops were able to keep a semblance of order, the tumult continued in many districts. In Bolkenhain some yarn merchants were dragged through the mud and their stock destroyed. In Waldenburg there were some bad scenes. One day, when the market opened, the weavers fell on the unfortunate yarn merchants, gave them a thorough beating, and then demanded the yarn at their own price. A few days later similar scenes took place at the yarn market in Striegau. Also in the county of Glatz there were disturbances in the villages, and the soldiers had to intervene. Later there were pitched battles in Breslau and Schmiedeberg, where a number of people lost their lives, and in certain villages the farmers commenced to revolt against their landlords. At first the minister was inclined to be lenient, as he considered the trouble to be due rather to the hardness of the merchants than to revolutionary stirrings among the poor people, but as news of further tumults reached him, he found it necessary to use severe measures, and he arranged to send further troops to the mountains. The King sanctioned the steps taken, and in a letter stated that it was very unpleasant for him to hear of the unrest amongst the weavers, but that no effort must be spared to put this down. It seemed to him that the merchants were to blame, because they paid so badly for the work, and he ordered it to be seen to that so important and useful a class as the weavers were not oppressed by the merchants. As the tumults continued, certain of those taking prominent part in the disturbances in the markets were noted, and on a certain night the villages in which they lived were surrounded by Hussars, the ringleaders were dragged from bed, and, after trial, were sentenced to six years' imprisonment. The King at this time made a proclamation, dated 20th May, 1793, in which, after expressing his great sorrow at the unrest that had occurred in the mountains and in the town of Breslau, unrest which, he said, had been caused largely by the distribution of shameful literature and pamphlets giving a wrong impression of freedom and equality, and containing statements which, unfortunately, were considered by some of his subjects as truthful, and through this many generally well-intentioned people of the lower classes had become dissatisfied with their condition. He proposed to correct the evil by imposing a number of heavy penalties, and some of these seem to have had much weight with the people, and contributed to their quieting, but the minister felt it needful at the same time to use all his efforts to make peace. During a journey he made to the disturbed districts, he heard the complaints of the weavers and spinners. They made requests, of which the following were the chief:—Abolition of flax merchants; reduction of the number of yarn merchants; interdiction of storing yarn in expectation of higher prices; prohibition of payment to the weavers in gold at paper value; prohibition of the inlet of Bohemian linen; dismissal of the chief linen inspectors; introduction of fixed stamping fees. At the same time complaints were made of the high prices of bread and meat, and the low prices of linen.

In so far as were concerned grievances influenced by the revolutionary war, nothing would be done to alleviate them, but for legitimate grounds of complaint laws dealing with these were promised without delay. These were to contain new regulations against the manipulation of the merchants, and were to provide for introduction of fixed prices for food-stuffs, substitution of the disliked chief inspectors, payment of fixed yearly salaries to the stamp masters. There were issued a general reprimand to the merchants, with imposition of a penalty of 60 thalers to be laid on anyone paying the weavers in clipped money, and one of 20 thalers for employing brokers or for treating the weavers badly. On 15th April a public notice was printed referring to all the complaints, and attaching blame to the merchants, who, it was stated, had often, in the market, thrown the weaver's goods at his feet and struck him in the face. To stop this abuse, it was ordered :—That every merchant found guilty of acting against the regulations, or who paid a weaver for his goods in clipped money or base coins, or lowered the stipulated price, would be not only dismissed from the Merchants' Society, losing all his rights of commerce, but, also, would be heavily fined. Further, in order to check the usury of the yarn merchants and the yarn factors, a strict order was sent to the magistrates in (here a number of towns and districts are mentioned), enjoining them, from market-day to market-day, to state, under their signature and seal, the proper price current or the price the yarn had stood at in the market, and to send these documents to the town-halls in the various towns, so that the weavers would have a security against unchristian usury.

It was considered impossible to dispense with the flax merchants; but to stop their extortions, it was decided that, for the future, in the mountains each yarn market should be at the same time a flax market, and on the plains each grain market should be also a flax market, and that the spinners should have a right of purchase before the flax merchants. A reduction in the number of yarn merchants was also not possible, but it was arranged that, for the future, the distinction between yarn merchant and yarn factor would be more definite. It may be mentioned here that the word "Garnsammler," which we translate "Yarn factor," would be, if literally expressed, "Yarn collector," that is, one who collected the yarn in small quantities from the spinners and sold it in bulk to the yarn merchants. No yarn merchants were allowed on the plains, and no yarn merchant was permitted to collect yarn on the plains. The yarn factors were not allowed to purchase yarn from other factors at the markets, nor to keep more than 12 schocks of stock. No one was allowed to collect yarn without a concession. The yarn merchants were hindered from having too large a stock, and were bound to give the weavers permission to purchase before them at the markets. The export of yarn was forbidden. It was projected at this time to employ many of the distressed weavers at road-making and filling in swamps, but, most of them being too weak and ill for this work, the poorest had to be supplied with grain from the state stores.

The regulations regarding the piling up of yarn stocks had not the desired effect, and strict measures were proposed to compel holders to sell. The King sent a rescript, in which he stated that it was not permitted for the rich to withhold their superabundance from the poor. The minister commissioned the justices in various districts to seize all yarn stocks, bring them to market, and have them sold at low prices for account of the owners. Military aid was promised; but, despite all regulations, the price of yarn remained nearly as high as before. Then it was decided to establish a definite fixed price for yarn in the same markets. It may be interesting to know that yarn spun from dew-retted flax was valued at 3d. a bundle extra. Rates of commission allowed to the merchants and factors were fixed, and also of cartage at so much per mile. It was proposed to enforce these regulations throughout all Silesia; but, as others before them, they failed to produce the desired effect. A small shrinkage in the yarn prices did result, but they remained higher than the scheduled rates.

It is difficult to explain the abnormal price of yarns at this time. There were hands enough to spin, and the rates arranged should have yielded sufficient profit. The minister held that his orders had not been thoroughly carried out. He brought his coercive measures to bear first upon the Upper Silesian yarn merchants; and as prices in August again went up, he did not delay in issuing orders compelling the merchants to visit the markets, and took steps to prevent export. In consequence, a report came from the Neisse justices that the prices there had dropped. The finance minister at this time appointed a commission of inquiry into the flax and linen trade, but no report was made. The distress continuing, it was ordered, towards the end of 1795, to relieve the weaver of the charges for stamping the goods, and that the stamp masters should receive a fixed salary, raised by introducing a slightly higher export duty. The condition of the mountain weavers became serious; the flax and yarn merchants still kept the upper hand in respect of their charges; in many villages there was the greatest want. This misery and wretchedness had completely broken the spirit of the people; they made no more complaints, and tamely submitted to any treatment. They were glad to hear that employment would be given them in road-making. It was reported that the weavers in some districts were constrained to dig up from the carrion pit dead animals, and eat them. The Bürgermeister in Schömberg said that this was nothing new. In the best of times the people ate such food. Proposals were made for establishing flax and yarn stores financed by the Government. It was hoped that by such means, in case of an unexpected fall in demand, a stock might be gathered, and thus obviate the difficulty hitherto experienced—a want of production of good flax and good yarn. It was also expected that by these means the prices would be properly regulated, and kept at a normal level, preventing the possibility of an extortionate rise on the part of the flax and yarn merchants, so that those who produced and those who manufactured the materials might have advantageous middle prices. This project, embodying many good ideas, was, however, stopped owing to the revolution which just then broke out in Poland. Prussia sent an army against the revolutionists, and money for the peaceful undertaking was not forthcoming. When the Polish war was nearly ended, however, certain sums were placed at disposal for establishing flax and yarn stores. Since the spring of 1794 the yarn had continued to rise in price, owing to the increased number of factors, and the storing up of flax on the part of the estate owners or large farmers. Efforts were made in many directions, first to avoid the storing of flax, then to keep in check the many factors who were stocking and exporting yarn contrary to law, but, in spite of every effort, the object aimed at—a provision of yarn at cheap rates—was not reached. This was due, not alone to the fact that the laws were badly enforced, but also to a decrease in the spinners. It began to be seen that the days of hand-spinning were coming to an end. In 1797 the spinners had declined greatly in the best spinning districts, and proposals were made by the minister to substitute machinery. Such a proposal, on his part, was nothing more than a dream. The various Chambers of Commerce were not in favour of any state ownership of industries, and so matters were allowed to remain as they were, except—and this might seemingly be called a travesty—the spinning-schools were to be put in order again. Germany was slow to introduce mechanical spinning, so that for many years, and even up till the middle of the nineteenth century, hand-spinning continued to be an industry of commercial importance. The cost of hand-spinning must have been very low, despite the fact that the price had a depressing effect on the weavers' profits. From the time of the great Frederick's death spinning had gone backwards. Owing to low profits, the small farmer had lost his wish to grow flax and have it spun in the midst of his family, and so the spinning was confined to districts where flax was grown in quantity by the larger farmers or estate owners. As late as 1805, according to Oddy, "The yarn of which the Silesia linen is made is spun by means of the spindle, which makes it almost look like cotton, and such kind of linen requires less time to bleach than any other." This would be due to softer yarns, produced by less twist than the spinning-wheel gave.

Although the industry in Silesia continued to advance, and that province became the largest manufacturing centre in Germany, still the condition of the weavers remained bad, and required a continued State intervention to bring relief. When, in 1806, Prussia was torn in half, the French occupation scarcely altered their condition. They were so poor that it was hardly possible to reduce them further. The whole history of the Silesian linen trade in the days of hand-spinning, at any rate, after the death of Frederick the Great, is one of depression amongst the weavers. The chief blame for this state of affairs, according to Dr. Zimmermann, is to be attached to the usurious practices of the merchants, both yarn and linen merchants. We incline to think that the mode of producing the yarns had much to do with it. It seems strange that a mode of spinning in use before authentic historical times should persist, commercially, in Germany into the nineteenth century, passing by and ignoring the spinning-wheel and surviving into the age of mechanical spinning.

CHAPTER XLVII.

Production and Export

In dealing with the history of the linen industry in the other parts of Prussia we begin with Brandenburg. Before and during the reign of the Great Elector the industries there were few, and of a purely domestic nature. A fillip was given to increased energy by the immigration of a number of French Protestants, after the Edict of Nantes had been revoked in 1685. Voltaire says that "almost all the north of Germany (a country hitherto rude and void of industry) received a new face from the multitude of refugees translated thither, who introduced their arts and manufactures." The Great Elector placed agents on the confines of France to conduct these people to Brandenburg, and bear their expenses all the way. They were granted immunity from taxation, and encouraged by every means. In the succeeding reign, numbers of them were settled in the new little kingdom of Prussia. From Brandenburg the greater kingdom of Prussia expanded, and with it spread the linen trade to the increasing dominions and appanages. The French immigrants left an impression of their dexterity in fine spinning.

The following appears in an old Scandinavian work entitled *Archive for Statistics, Politics, and Household Sciences:* "The peasants in the neighbourhood of Bielefeld, Gutterslohe, and Rillberg, in Westphalia, who wear wooden shoes, spin, with their clumsy fingers which hold the plough, yarn of such a fineness that a pound of flax

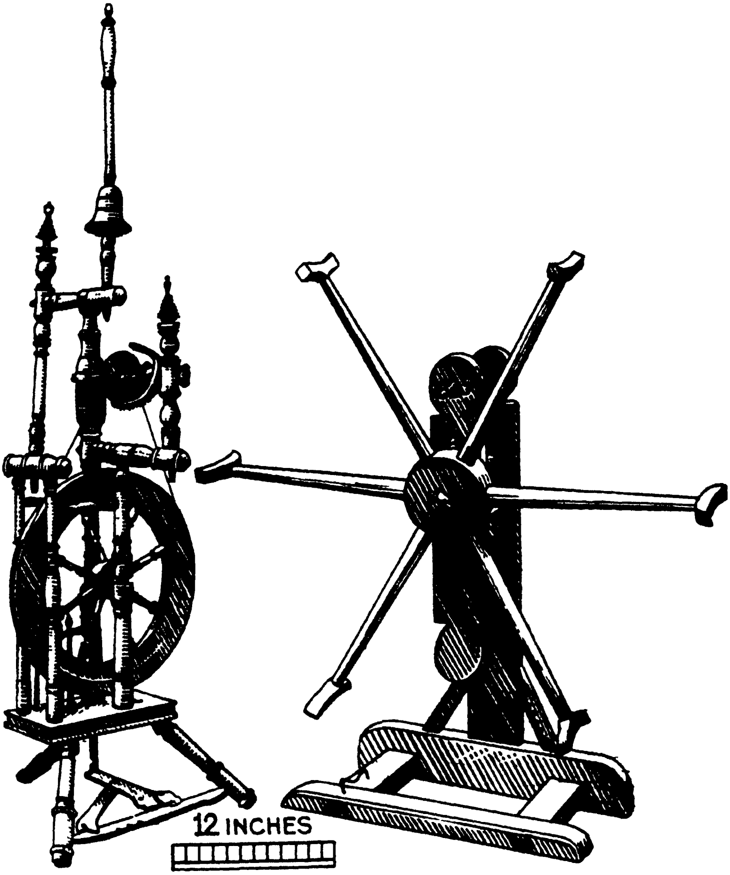


FIG. 38. SPINNING-WHEEL AND REEL OF THE GERMAN TYPE, From Liebenau, in the Spreewald. The Reel is dated 1825.

produces a thread twenty-three miles in length (about 88 English miles), and that sixteen cuts of yarn, or 19,200 threads, each six feet in length, can, when pressed together, be drawn through a common finger ring." There is, however, no evidence of any exceedingly fine linens being produced commercially in that or any other part of Germany; on the contrary, coarse goods were manufactured as a rule. MacPherson, writing of 1692, and the strict prohibition of commerce between England and France owing to the war, states that, at that time, "France was almost entirely deprived of a most profitable linen manufacture, of two species; viz., dowlas and lockram—the latter was an unbleached linen, chiefly manufactured in Normandy and Brittany, of which England was said to have taken to the value of £200,000 annually. For England, not being well able to be without these two sorts of linen, set the Hamburgers on imitating them so well that the very names of those French linens will be buried in oblivion." Hamburg, at this time, was one of the three remaining cities of that once powerful commercial organisation, the Hanseatic League, the other cities being Lübeck and Bremen. The distribution, through Hamburg, of this considerable trade in linens to the various convenient manufacturing centres in the northern and central parts of Germany must have given, at that early stage of its life, an impetus to the industry. During the eighteenth century the trade spread very generally over the north, but centred especially in certain districts. A description of the various linens made during this period, and the principal seats of manufacture, are here given, compiled principally from Oddy's *European Commerce*.

Bielefeld manufactured the highest class of linens in the whole of Germany, preferable to those made in Holland and Ireland. These goods were exported to almost every part of the world, but particularly to the New United States. This foreign export trade would appear to be indirect, made through shipping houses, who shipped to America and then re-shipped to the West Indies and the Spanish Main. The linen made in Bielefeld was usually from 1 to 1¾ yards wide, and the lengths of the pieces from 30 to 60 Bielefeld ells, or from 18¾ to 37½ yards—8 Bielefeld ells being equal to 5 yards. Bielefeld was also famous for fine linen, 125 thalers having been paid for a piece containing 60 ells, unbleached, equal to about £19 for 37 yards. In the Electorate of Hesse and Cassel a coarse linen, called Bleichtucher, was made, yard-wide, the chief markets being Spain, Portugal, and America, used in the latter country for negro clothing, but the greater quantity was again exported to the West Indies for making coffee and cotton bags. Each piece of this cloth was marked at the end with the Electoral arms—a red lion.

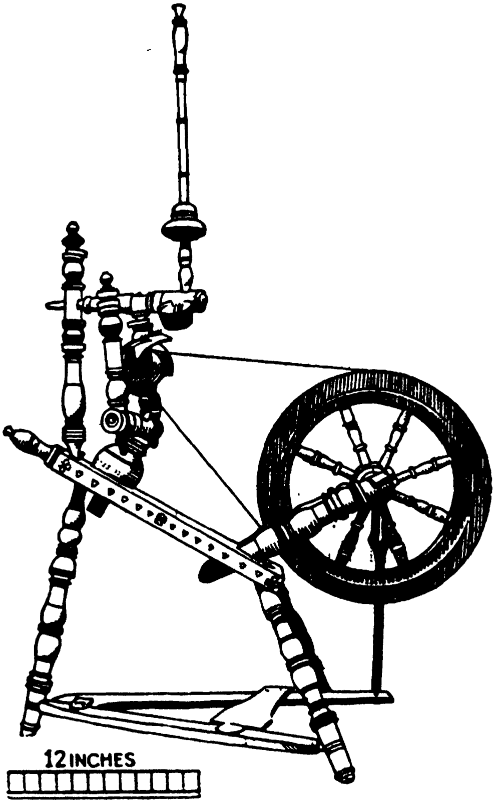


FIG. 39. SPINNING-WHEEL OF THE DUTCH TYPE,
From Liebenau, in the Spreewald.

In the Bishopric of Osnabrück or Osnaburg was made the strong coarse linen, afterwards copied in Scotland, the chief markets for which were America, the West Indies, and Spain. In the Hanoverian districts of the county of Hoya a similar home-spun linen was made and sent to Bremen, the merchants there buying it from the farmers, by whom it was made. The whole produce of the county of Hoya had a value of nearly 150,000 thalers annually. A similar linen was made in Essen.

In the town of Halle and the surrounding parishes there was manufactured what was called Lovent linen, the warp of which was spun from hemp, and the weft from hemp tow. This linen, when of proper width (one Flemish ell=¾ yard), could be stamped by the stamp office with the Prussian arms; viz., a black eagle and the letters F.W.R.

In the principality of Lippe another hempen cloth, called Meyer linen, was made, sometimes called Lippish white linen. An exceedingly poor linen used for bales, and called Münsterland, was made in and about the cities of Lippstadt, Rillberg, Stromberg, and Paderborn, and a very similar kind was made in the parish of Melle, in Hanover, bearing the name of Melle linen. Another packing linen was woven in Paderborn, in Westphalia, made up in pieces of 21 to 22 Cologne ells.

To any reader desirous of reducing the various measurements in vogue in Europe at one time into English yards, we give the following from M. Richard's *Treatise of Commerce*:—

100 ells of Amsterdam are equal to 98¾ of Brabant, Antwerp, and Brussels; to 58½ of England and France; to 120 of Hamburg, Frankfurt, Leipsic, and Cologne; to 125 of Breslau; to 110 of Bergen and Drontheim, and to 117 of Stockholm. The English ell contains 3 feet 9 inches, or one yard and a quarter; the Flemish ell 27 inches, or ¾ yard. The following table is reduced from Hamburg measurements:—

33	Hamburg	feet	make	31	English feet.	
83	,,	ells	,,	52	yards English.	
6	,,	,,	,,	5	ells	Brabant.
23	,,	,,	,,	21	,,	Danish.
142	..	,,	,,	141	,,	Lubeck.
45	,,	,,	,,	47	,,	Pernau.
14	,,	,,	,,	15	,,	Reval.
22	,,	,,	,,	23	,,	Riga.
31	,,	,,	,,	25	Russian Arshines.	
29	,,	,,	,,	28	ells	Swedish.

Steinhager linen was only made in the small town of Steinhager, in the neighbourhood of Bielefeld. It was a fine, close, well-bleached linen, made up in pieces containing 20 Cologne double ells each. A very strong and lasting linen, called Tecklenburg, and made in the county of that name, was entirely produced from hemp. In Wahrendorp and the neighbouring market town of Freckenhorst, linen called Wahrendorp was made in great quantities. This was sent to Bielefeld to be bleached and made up; the name of the manufacturer, with the measure of each piece and the quality, was written on a piece of parchment and tacked to the edge of the linen. Weser linen was a very loose, thin sort of hempen linen, manufactured in the principality of Lippe, in the neighbourhood of Detmold, Blomberg, and Horn. In Saxony a fairly extensive trade existed in damasks and in linens of various sorts. A trade was carried on to Italy with Weben linen 1⅝ to 1¾ Leipsic ells wide, and 72 ells long. Lawns were also made in opposition to the Silesian, and measured by the Breslau ell. There was also manufactured in Saxony, Möbel linen, measuring 1¼, 1½, and 1¾ Leipsic ells in breadth. This linen had dyed yarn interwoven into it, either striped or checked, and was divided into three qualities—common, middling, and fine. Italy, Spain, and America were the chief markets. Other classes of similar goods woven in Saxony were Arabias, made with red stripes, and Boutons with blue stripes or checks. One might be inclined to assume from the word "Möbel" (furniture) that these linens were used for upholstering work. It would appear, however, that the Boutons and Arabias were sent to America and the West Indies, and used only for seamen's shirts, clothes, etc. The Möbel linen was used for all domestic purposes. "Creas," too, were made in Saxony, and from all accounts the trade in them was established there before the Silesians attempted their manufacture. They were made in different sorts to suit the various markets, some going to England, to Italy, Spain, America, considerable quantities to Barbary, and by way of Leghorn to Tunis and Algiers, the yarns of the better qualities being spun in Meissen, Halberstadt, and Brunswick. Of the various Silesian linens made towards the close of the eighteenth century many were suited to the Spanish markets—for example, Bocadillos, Caserillos, Cavallines, Cholets, Plattillos, and Touanes. These latter were also a considerable Lusatian manufacture.

We have noted the Silesian exports up to 1787/88. In 1792/93, in Prussian Silesia, there were 24,761 looms which employed 38,451 workpeople, and manufactured 8,722,861 thalers' worth of linen, exporting in the same year to the value of 6,190,554 thalers to foreign countries. Nearly all the Silesian goods exported from the north

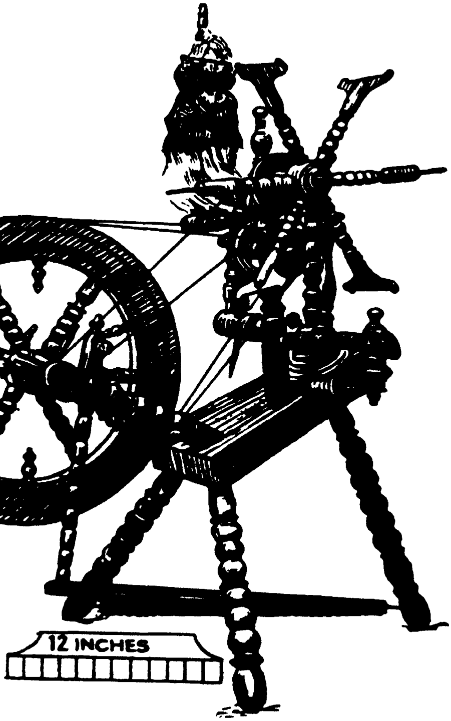


FIG. 40. GERMAN WHEEL FROM THE RHINELAND.

This is interesting in having a reel attached. In the neighbourhood of the town of Kempen, where this wheel comes from, and in the adjoining villages in Holland just over the border, similar wheels with reels are found; so far as is known they exist nowhere else. There seems little practical use in cumbering a spinning-wheel with a reel.

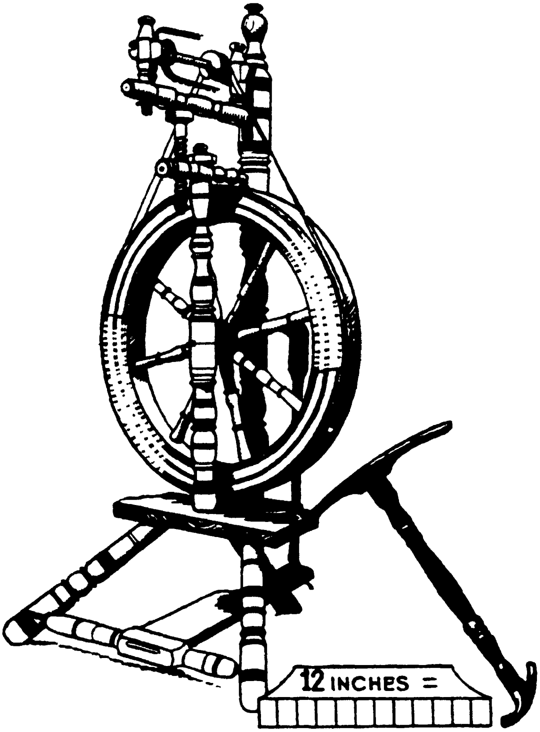


FIG. 41. SPINNING-WHEEL AND MEASURING STICK FROM BAUTZEN, IN SAXONY.

This wheel is also of strictly German type, and is found throughout the whole of the kingdom of Saxony, as well as throughout all Prussian Silesia.

were sent by the Elbe to Hamburg, some, but not many, by way of the Oder to Stettin. The following accounts of the exports of cities other than Hamburg may be said to indicate the manufacture of the north of Prussia generally, and Mecklenburg, except where noted specially. We avoid in these lists all exports of flax and hemp, except Oberland flax, as these raw materials, with this exception, being the growth of Russia and Poland, will be dealt with in their proper place. The question of linen yarn export is one of some difficulty. A portion, not ascertainable, came from Lithuania, owing to the convenient water-ways from that part of Russia, but more probably the bulk was spun in the Ermland. The shipments were effected at Königsberg, and the Custom House returns of that port make no distinction as to place of manufacture. Similarly in the Dantzic returns of linens a portion, and probably a large portion, came from Poland. This matter will be treated more fully under Russia. Here we give the full returns of these ports, and deal with the subject from the Russian standpoint. The weight of the Ermland yarn was from 6 to 20 lbs. per bundle, or according to present-day counts from 33's to 10's lea. A few ships generally wintered at the port for the purpose of taking the Ermland yarn early to Hull, for the manufacturers at Manchester.

Linen Yarn in Schocks of 12 Bundles each, Shipped from Königsberg in the following Years.

Gt. Britain and Ireland.	Including all Places.	Gt. Britain and Ireland.	Including all Places.	Gt. Britain and Ireland.	Including all Places.
1795.		1796.		1797.	
16,921	77,791	14,289	14,289	9,604	9,956
1798.		1799.		1800.	
19,729	19,729	21,861	23,198	15,226	16,898
1801.		1802.		1803.	
9,855	12,359	5,840	6,499	12,787	12,921

The returns of 1804 give 23,331 schocks to England, 12 to Lübeck, Bremen, and Hamburg, 7 to Pomerania and Emden, and 243 to Dantzic and Elbing. No linen goods are notified from Königsberg, but considerable quantities of flax-seed, both for sowing and crushing.

From Braunsberg, the principal town of Ermland, communicating to the Haff by a rivulet navigable for small craft, there was exported

Ermland yarn and Oberland flax. The yarn was chiefly exported to Hull for Manchester. Towards the approach of winter the people in the country began to spin the yarn, and, during the whole of that period, they brought it to the market from the small towns and villages, where it was bought by the merchants who dealt in that article, chiefly at Braunsberg, and some few at Elbing. The flax used in spinning the Ermland yarn was principally grown in old Prussia; that is, the East Prussia of to-day. Ermland formed one of the eleven districts of this old province of Prussia. The present Ermland, with an area of 1,640 square miles, is about the centre of East Prussia. Great quantities of flax are still grown there. An odd mode of yarn measurement prevailed in the Ermland—that is, by the piece—and it was calculated that when there was a good flax crop 3,000 pieces more of yarn would be produced than in ordinary years. A Prussian stone weighed 33 lbs., and from each stone of flax there was reckoned 40 pieces of yarn to be spun, on an average. In the year 1804 the quantity of Ermland yarn exported was, from

Braunsberg	...	85,943	schocks of	12 bundles.
Elbing ...	...	15,075	,,	,,
Königsberg	...	22,635	,,	,,
		123,653		

of which 112,145 schocks were shipped to Hull, the remainder to Stockton, Kirkcaldy, London, and Dundee. From a comparison of the exports given above from Königsberg, with the total in the same year, we can trace something of the Russian trade, which accounted for 958 schocks only.

Elbing was a convenient and considerable port; the warehouse island, containing all the warehouses, was surrounded by the river Elbing; here goods were kept, paying a rent, until disposed of. A Bank Comptoir was established in 1775, which made advances against grain, linens, flax, and other goods. The Ermland yarn exported from here was spun in the Bishopric of Ermland. It was brought by the country people and the spinners in small quantities to the traders. The yarn, when delivered, was mixed in respect of weight (that is, counts) and colour, and required to be assorted, weighed, bound, and packed for exportation. Oberland flax of the best quality was shipped from Elbing. It derived its name from that part of the country called the Oberland. The productions of Poland came down by the Vistula. From the following table of exports we can discover the amount of Polish yarn exported in 1804, by deducting the amount of Ermland yarn exported from Elbing from the total exports, but we are quite at a loss regarding the flax and the linen exports, some portions of which may have been Polish. We give, however, the total exports:—

	1797.	1800.	1801.	1802.	1803.	1804.
Flax,—Stones ...	18,711	19,487	21,757	13,308	32,592	24,922
Linen,—Pieces ...	31,597	18,963	45,842	17,348	24,966	17,632
Linen Gds.—Thalers	55,174	35,161	38,434	56,842	53,310	30,547
Yarn,—Schocks ...	28,862	37,184	25,570	9,823	9,781	17,589

We now come to Dantzic, a town which had direct communication with Russian Poland by means of the Vistula. The mouth of the river being choked with sand, the inconvenience was remedied by making a canal of a depth of 13 to 15 feet, beginning a few hundred yards from the mouth, across a jut of land about three-quarters of a mile wide, directly into the bay. This canal was begun in 1717. Dantzic, being a staple town, no transit business was allowed. Every foreigner was obliged to buy from a burgher and to sell to a burgher. People could trade with a Pole if he had the liberty of the city, or was a burgher, but neither an Englishman nor a Dutchman could become such. They were allowed to be commissioners or merchants, provided they bought and sold from a burgher only. Dantzic was a free port under Poland; at the second division of that kingdom, in 1793, it became subject to the crown of Prussia; the statistics we have of exports date from that period. The river Zahn, which takes its rise in the Carpathian Mountains, falls into the Vistula; at Jaroslaw it becomes navigable, and brings the greatest part of the products of Galicia to Dantzic, consisting, amongst other goods, of hempen linen and yarn. Galicia became a crown land of Austria at the first Polish partition, in 1772. The largest river flowing into the Vistula is the Bug (western river of that name), passing through a rich country in what became Russian Poland. This river served to convey the products of the Ukraine and the best part of Lithuania, but, in consequence of the enormous duties laid on goods passing through Prussia, the Poles shipped a great part of their goods to the Black Sea by way of the Dnieper, the Bug, and the Dniester. The Ukraine, which will be more fully described in the Russian section, produced large quantities of hemp and coarse linens, and these found a more convenient export outlet in the Baltic, at Dantzic, than the Black Sea could afford. A good deal of Polish linen was bought in Dantzic. This also will be dealt with in Russian section. The following tables, therefore, giving the exports of Dantzic, will contain an unknown quantity of both Polish and Galician goods, chiefly the former. The measurement of linen is given in schock or three scores; the purchases of linen in Dantzic were made according to Dantzic ells, eight of which were equal to five yards English. So we presume the figures indicate, when multiplied by sixty, the number of Dantzic ells.

All bargains for corn, wood, linen, etc., were made in Dutch ducats, fixed at 12 florins Dantzic currency. A Dantzic florin was equal to 9⅜d. English.

Schocks of linen exported from Dantzic in the following years:—

1793.	1794.	1795.	1796.	1797.	1798.
52,474	43,369	80,575	82,728	34,347	38,949
1799.	1800.	1801.	1802.	1803.	
61,074	23,208	56,730	40,263	62,084	

A more detailed list for 1804 is as follows:—

To England.	To Holland.	To Portugal and Spain and France.	To Denmark.	To Sweden.	To Hamburg, Lubeck, and Bremen.	Total Amount.
29,263	1,739	25,953	7,542	12	1,553	66,062

Goods sent to Hamburg, Lübeck, and Bremen were for further export from these Hansa towns.

The following are the exports of schocks of linen from Dantzic to France, Spain, and Portugal for a number of years:—

1795.	1796.	1797.	1798.	1799.
7,813	19,323	7,520	6,280	8,245
1800.	1801.	1802.	1803.	1804.
—	7,687	7,687	18,300	25,953

Stettin is another important Baltic port. The exports of linen from here were not great. As we have noted already, the bulk of the Silesian linen traffic went via Hamburg. Geographically speaking the river Oder, which terminates at Stettin, is a more direct route from

Silesia than the Elbe, which has its termination at Hamburg. Stettin as a port, however, had certain disadvantages in comparison with Hamburg. The latter city is conveniently situated on the North Sea, while the Stettin traffic had to find its way by the Sound and Cattegat. The mouth of the Oder also at that time presented difficulties, and the frost setting in earlier, and continuing longer at Stettin, interrupted navigation more. Whilst heavy goods from Silesia came, of necessity, to Stettin on the Oder, lighter goods, including linens, found their way by the same river until one of three canals, connecting with the Elbe, was reached, when the traffic was diverted to that river and thence to Hamburg.

Formerly Stettin had a staple trade of several articles, but at the time of which we write its staple right was only extended to flax-seed, chiefly for Silesia and the linen-manufacturing districts. We give in the following table the imports of flax-seed for sowing purposes; the countries of growth are not mentioned; probably they were Holland and Russia. In the exports, a small amount of linen is noted made up in chests.

IMPORT OF FLAX-SEED IN BARRELS.

1798.	1799.	1800.	1801.	1802.	1803.
35,515	10,201	1,419	5,771	8,560	23,391

CHESTS OF LINEN EXPORTED.

1798.	1799.	1800.	1801.	1802.	1803.
81	145	102	149	135	247

Regarding Pomerania generally, there were some manufactures, principally of linen, but not much commerce. A good deal of linen was made in Kolberg, and some also in Anclam; these ports traded with Stettin, and although there is no mention of the fact, it is probable that the Stettin linen exports were of Pomeranian manufacture. In Mecklenberg there was little manufacture of any description. Corn was the principal produce, a little flax, exported from Rostoc, averaging less than twenty tons a year. Lübeck, one of the most celebrated cities of the Hanseatic League, possessed but a small trade in linens, and it would seem only from Russia, whence goods were sent down by the last ships in autumn to wait the spring market.

The table of exports from Lübeck makes no mention of linens; the following are the exports of hemp, flax, and sail-cloth.

		1794.	1795.	1796.	1797.	1798.
Hemp,—	Bales	2,865	2,590	4,003	4,978	6,080
Flax,—	Bales	3,399	1,691	1,299	4,074	2,771
Sail-cloth,—	Pieces	200	4,626	4,511	350	2,931

Beyond the above table we have no figures at disposal. No reference is made to the amount of goods passing through Lübeck. The same must be said of the port of Hamburg. Although Oddy states that the linen trade formed a most important branch in the exports by the Elbe as well as the Weser, no account of the transit trade is given—that is, the trade from various parts of Germany—the goods comprising which merely passed by way of Hamburg to their destinations. The linens chiefly exported in this way came from Silesia and Brunswick, some from Halberstadt, Westphalia. The following is an account of the German linens brought into Hamburg:—

		1794.	1795.	1796.	1797.	1798.
From Berlin,	Casks ...	88	42	38	37	13
,, ,,	Bales ...	2,600	2,189	2,804	—	2,107
,, ,,	Chests ...	12	23	263	258	337
,, ,,	Pieces ...	—	—	—	—	80
From Luneburg,	Casks ...	88	80	17	64	—
,, ,,	Bales ...	697	422	173	83	4
,, ,,	Chests ...	4,387	3,314	3,155	2,930	402
,, ,,	Pieces ...	1,758	1,710	—	332	—
From Magdeburg,	Casks ...	—	—	—	2	—
,, ,,	Bales ...	109	139	277	1,134	46
,, ,,	Chests ...	6	2	7	—	—
,, ,,	Pieces ...	19,020	26,900	32,031	18,976	18,127

It is probable that the above linens were destined for America or the West Indies. They are detailed in association with the import of West India produce—coffee and sugar. After the blockade of the Elbe the trade of Hamburg was interrupted, and continued in intermittent fashion during the French occupation. The same may be said of Bremen after the blockade of the Weser. Statistics of the transit trade by Bremen are not available. By the Weser, Werre, and Fulda, and other rivers of less note, Bremen received from Saxony, Hessen, and Hanover produce and manufactured goods, linens in particular (Oddy, p. 442). Bremen had the convenience of conveying goods by water some distance into the interior of Germany.

The only other port on the North Sea exporting linens was Emden. We have a record of only one year, 1784, when 1,175 pieces, of Westphalia manufacture, were exported.

The following is a list of the quantities of linen yarn exported into that part of Great Britain called England, from Prussia and Germany:—

Years.	Prussia. lbs.	Germany. lbs.
1786	3,806,229	2,039,566
1787	4,158,695	1,850,385
1788	3,653,084	1,639,029
1789	3,176,366	1,748,237
1790	3,971,152	2,221,640
1791	3,685,448	2,486,124
1792	4,316,963	2,149,321
1793	3,659,190	2,456,767
1794	3,455,712	2,242,411
1795	3,510,301	2,205,885
1796	2,972,921	2,391,847
1797	2,863,628	1,745,744
1798	3,972,059	2,262,267
1799	4,257,982	3,354,786

Some of the Prussian yarns will most probably be of Lithuanian spinning. This question is treated in the Russian section.

Of the southern German states, there is little record of any manufacture for commercial purposes. In Swabia there is mention of a lawn industry. But in Bavaria and Würtemburg there exists to-day in many places the remnant of what was once a great domestic industry. The farmer still grows his little lot of flax, and has it spun and woven in his own home. In some districts what is known as the Lohn-Spinnerei has silenced the spinning-wheel, but the weaving is conducted as of old. To these mills the farmer brings or sends his flax, where it is spun and returned to him, or, perhaps, more generally, he simply receives an equivalent in yarn, being charged with the cost of spinning, plus profits. This tranquil, unembarrassed mode of conducting business is employed only in a few districts.

CHAPTER XLVIII.

The End of the Wheel

In the mountainous regions we find the spinning-wheel still in active use, more particularly in the Swabian Alps of Würtemberg and the Algäuer Alps of Bavaria. In one little town in Würtemberg, Böhringen by name, the writer visited a wheelwright who had several spinning-wheels for sale for practical use, and others undergoing repairs. This man stated that he made about half-a-dozen new wheels each year. The writer having seen, not alone in Southern Germany, but throughout many parts of Austria-Hungary, Russia, and other countries, so much practical proof of the continuance of wheel-spinning in village houses, and being desirous of procuring further information, was induced to solicit the kind offices of the Department of Agriculture and Technical Instruction for Ireland. This body most courteously engaged to make the necessary inquiries, and approaching the Foreign Office obtained from that source a considerable amount of information, which will be found in the Journal of the Department for October, 1905. From this it will be learned that wheel-spinning has practically disappeared from Prussia. " The flax produced in Bavaria (confined to the northern part of the Upper Palatinate, the Fichtel in Lower Bavaria, the mountainous districts of Upper Bavaria and Swabia) is devoted almost exclusively to the manufacture of household linen for the use of the farmers themselves. The linen thus manufactured does not form an article of commerce to any material extent. In Würtemberg the flax and hemp hand-spinning industry has steadily

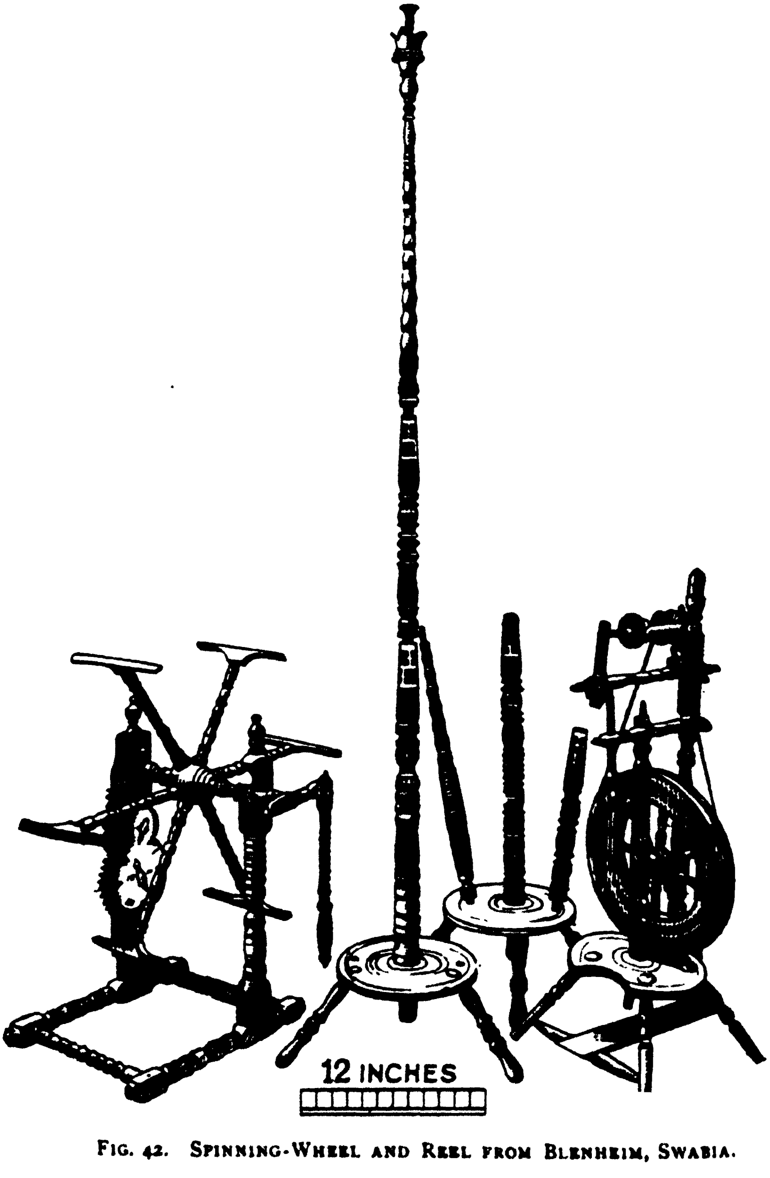


Fig. 42. Spinning-Wheel and Reel from Blenheim, Swabia.

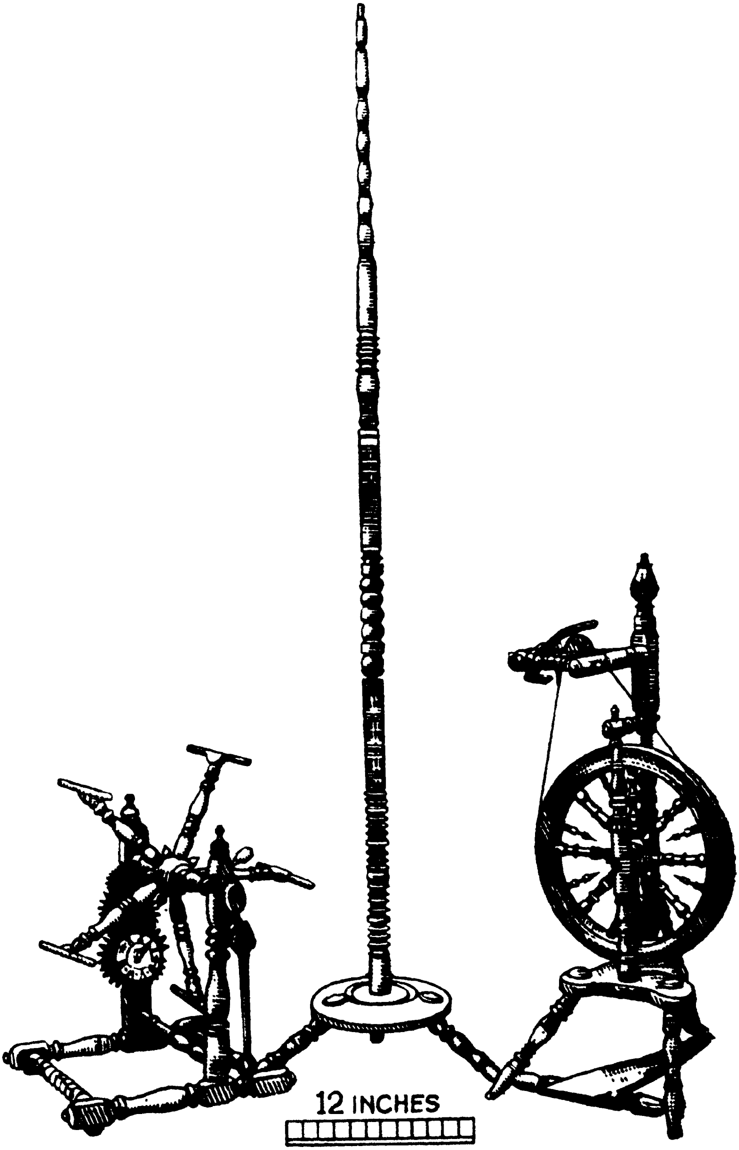


FIG. 43. SPINNING-WHEEL WITH SEPARATE JOINTED DISTAFF AND REEL. Carved and metal ornamentation, from Böhringen, in Würtemberg.

decreased during the last twenty years, and may be almost described as non-existent. The small remnant of a once flourishing industry is now entirely confined to a few scattered homesteads in the Black Forest district and in the Swabian Alps, and is there only pursued during the winter months, when there is little or no work possible in the open. In both districts the best evidence of how rare hand-spinning has become is the extremely small area in which flax or hemp is cultivated by the peasants. Hand-spun yarn is only of the coarsest description, and runs from No. 8 to No. 16, and is woven into very coarse, but serviceable, cloth." In 1906, the writer visited the town of Furtwangen, in the Baden portion of the Black Forest, and was interested to discover that an energetic movement was on foot to rehabilitate the wheel-spinning industry there. Inquiries elicited the fact that the clock and toy industries, formerly of a domestic nature, were gradually being concentrated in central workshops, where, generally, male labour was employed, and thus the females who had assisted at the manufacture in their homes were left unoccupied. The spinning of yarns in the Black Forest, when that industry was general, had given place to the more profitable making of toys and clocks, and wood carving, and although wheels were found in most of the houses they had of late been little used. In the attempted revival of this moribund industry, the Grand Duchess had taken great interest. Under her guidance an exhibition of spinning-wheels, reels, and other appliances had been opened in Karlsruhe, in 1903. In conjunction with this movement there was published, in 1904, an interesting book written by Dr. Karl Drescher, Professor of the Bonn University, entitled, *Die Wiederbelebung der Handspinnerei in Baden*—the revival of hand-spinning in Baden. At the end of the volume appears a map of the Grand Duchy, showing in different colourings and markings where, and to what extent, yarns had been spun, and were capable of being spun. When one looks at this domestic industry which is slowly coming to an end in Southern Germany, and considers all it had been to the rural populations, one is not surprised that an earnest desire for its revival should be advocated, if only it could be brought within the domain of practical utility. That, however, is beyond the powers of prince or potentate, no matter how well impelled. Wheel-spinning of flax in the United Kingdom is long dead, there is scarcely one alive who can remember its last struggle, so that the readjustments of labour conditions which then took place have been forgotten. These necessitated

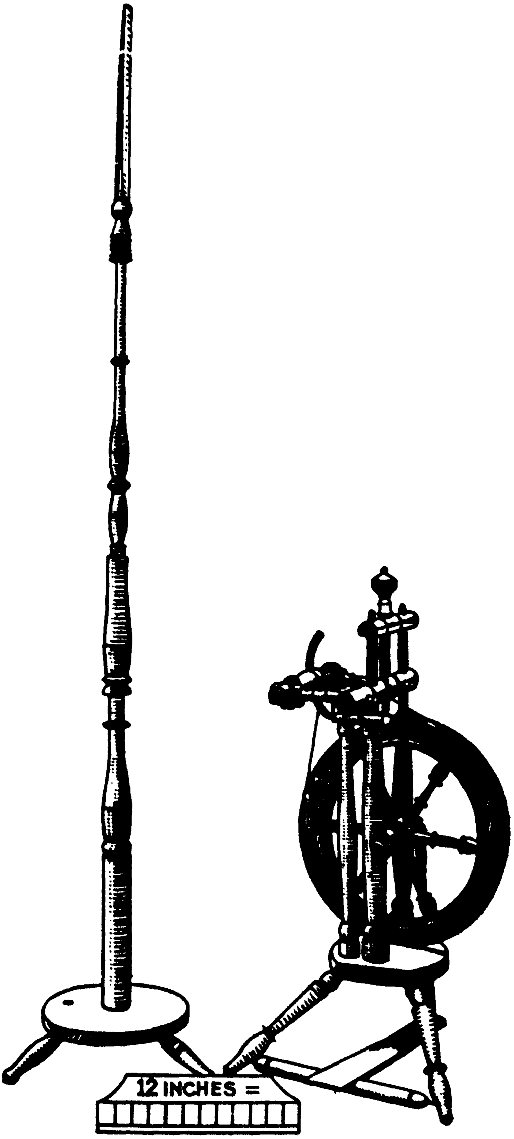


Fig. 44. Spinning-Wheel with Distaff, Furtwangen, Black Forest.

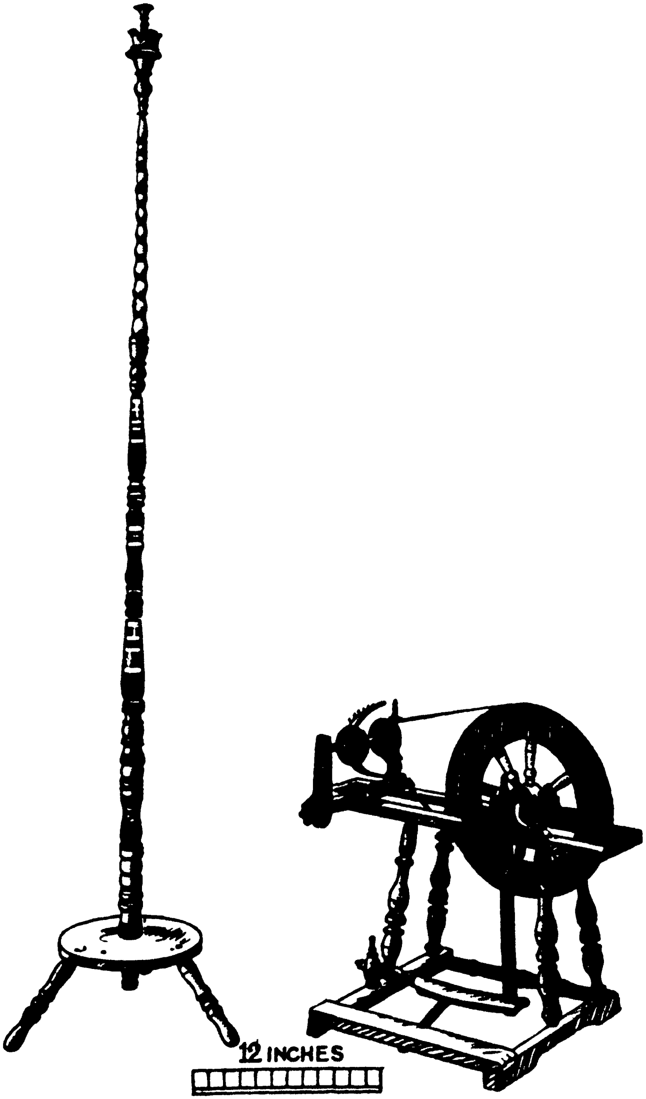


FIG. 45. SPINNING-WHEEL FROM DEESSENHOFEN, SWABIA.

This little wheel, although from Bavaria, is strictly of a Tyrolese type.

an immigration into the centres and towns where spinning-mills were established, and an emigration, especially in Ireland, from the country altogether.

Flax-spinning was very late in being established in Germany, and even to-day is in practice to but a limited extent in Bavaria, Würtemberg, and Baden. Thus hand-spinning, as a living industry, continued to within very recent years, and long after it was forgotten elsewhere. Women of but middle age tell the tale of those days, when they were young, when spinning-wheels were buzzing in every rural home, and mistress and servants alike contributed to the production of yarns for domestic use. Many a tale has been told of the pleasant "Spinnings," a happy custom once, too, existing in Scotland, where the girls met by invitation in each other's houses, and bringing their wheels with them, sat down to a long winter evening of spinning flax-yarns conjointly with those other yarns women so dearly love to spin, commonly called gossip. Then the boys would turn up to bring them home, before which, however, the floor would be cleared and a dance arranged. These girls were true spinsters, and before marriage had a fine stock of household linen prepared, but the matron must not cease her profitable employment. The usual marriage gift of the parents was a spinning-wheel and reel, often, if they were well-to-do people, elaborately carved. But those days are passing, if they have not quite passed, and will soon be forgotten except in folk-lore and song, which are rich in reminiscence of the German spinning-wheel.

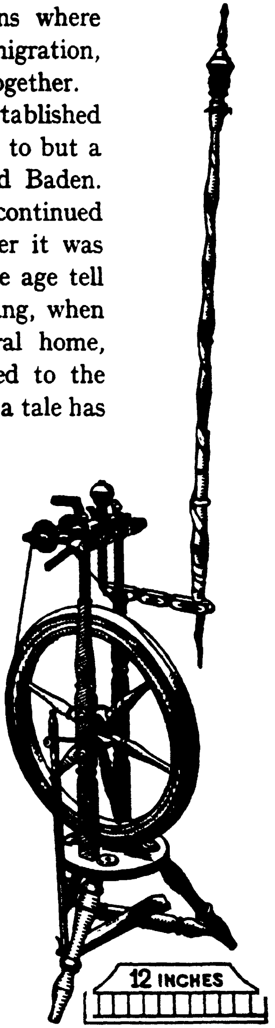


FIG. 46. SPINNING-WHEEL, ALPS OF ALGAU, BAVARIA.

In the mountainous districts of Germany wheel-spinning is still carried on as a domestic industry. Little or no employment can be procured for women in the winter months, and thus they spend their time, as their grandmothers did, in furnishing the house with linen. This wheel is of German type, with some attempt at decoration.

AUSTRIA-HUNGARY

CHAPTER XLIX.

A Silent Trade

The account given in previous section of the linen trade of Silesia, previous to the occupation of that province by Frederick the Great, may be read as applying to Austria. The Seven Years War, which ultimately confirmed Silesia under Prussian rule, was most disastrous to the linen trade of both Silesia and Bohemia. The successful efforts of Frederick to establish and build up the industry in his newly-acquired territory were not lost on Austria. The example of the Prussian King was followed with energy. The Bohemian linen trade was considerable, but had been carried on without any of those wise regulations which did so much to ensure success and security. The spinners had been permitted to act as they pleased in the matter of badly-spun yarn, while the short reels or insufficient quantity of yarn imposed upon the weaver compelled the latter to use false reeds and to give shorter webs than guaranteed. The trade was insecure, and to establish confidence something on the lines of Frederick's enactments had to be enforced. According to Zimmermann, on 3rd August, 1750, the Linen Charter in Bohemia was first granted, and on 15th February, 1755, an extraordinary detailed law was enacted for the Austrian portion of Silesia; in 1753 a supplement to the Bohemian regulations, and in 1755 a further enlargement. Moreover, practical support was accorded to the industry on the lines arranged in Silesia. A certain Count Chamaré, greatly interested in the linen industry, received from

Vienna fairly important cash advances at low interest, to promote both spinning and weaving, and to arrange for the proper disposal of the productions. According to Prussian emissaries, who were sent to make inquiries into this financial scheme, it was considered that the money allocated was inadequate for the purpose, and, through lack of proper judgment in administration, produced barely three per cent. for interest. During the series of Silesian wars, which lasted from 1740 to 1763, and which exhausted the various nations engaged, Silesia suffered much more than Bohemia, so that the latter province was enabled to carry on the linen industry with a greater amount of security. Wages in Bohemia were considerably lower than in Silesia; the people were poor, and unaccustomed to more than the bare necessities of existence, so that the cheap Bohemian linens became of great importance in the export trade. The Silesian traders were greatly alarmed, fearing that the Bohemians would take the sale of linens into their own hands, and obliterating any marks whereby the goods would be known as Bohemian origin, would compete with the products of Silesia; for, despite high duties enforced by the Prussian state, both yarn and linen could with profit be sent into Silesia. Any linens or yarns coming into this country to be bleached, and exported to other countries, received a drawback; so that the Bohemian competition was keenly felt. It is difficult to supply a reliable account of the volume of Austrian linens thus passing through Germany for export, or of the vast quantities of yarns, especially for Holland and England, which must have found their way by the same route. In the German section, it is noted that Silesian yarns were not permitted export, in order that the weaving industry might be maintained in that province; and through this restriction, the products of Austria came to be supplied to those countries where yarn-production, on account of high wages, was not an industry.

The growth of flax in Bohemia and Moravia has always been considerable. At the time we treat of, flax, largely grown from Russian seed, was in excess of the linen production. The simple operation of spinning by distaff and spindle was carried out almost everywhere, occupying odd moments of time. This, combined with the cheapness of flax, enabled the peasants to produce yarn sold at considerable profit. The export routes of Bohemia's productions were by the Elbe to Hamburg, and the Oder to Stettin. The former route was preferable, as it enabled the goods to be delivered to the North Sea, whereas the Oder route compelled vessels to round Denmark, or make use of the Holstein Canal. All vessels coming from Bohemia by the Elbe were obliged to unload their goods at Magdeburg into Brandenburg vessels, except such as came with fruit or other perishable or breakable goods,—fruit then, as now, being largely produced in Bohemia for export. This regulation helped to destroy the identity of linen goods and linen yarns. The Hamburg merchants, eager to purchase cheaply on the spot, established regular agents in the weaving districts of Bohemia; namely, in Nachod, Brunau, Poliz, Trautenau, Hohenelbe, Arnau, and Schatzler. Silesian agents, too, were settled in Bohemia, or regularly visited there, and as there seemed to be no effort amongst the Bohemians to embark in this trade, practically the whole of Bohemia's linen export passed through German hands. In mentioning the German linens brought into Hamburg for export, Oddy gives a list from Magdeburg. Some or all of these may have been of Bohemian manufacture, for the reasons above stated, that all Bohemian linens were transferred to Prussian vessels at Magdeburg. Now, although Oddy states that Bohemia excelled particularly in its linen manufacture, the produce of which was exported to almost every part of the world, he is unable to give any detailed list at the various export ports, for the evident reason that none was procurable. Any linens of Bohemian origin were shipped as German, but there is available information of certain goods detailed specially as of Bohemian manufacture. For example, much of the Creas was made in Bohemia and only attempted in Silesia. The yarn from which this was woven was bleached; there were several assortments of this linen, some sent to Italy, and mentioned in the Italian section of this work. A similar quality was exported to England, called dowlas, of thirty-two inches, while considerable export of this sort was made from Hamburg, Lübeck, and Bremen, direct to America and to the West Indies, where it met with a quick and advantageous sale. Another linen, of Bohemian make, called " Creas anchas," was largely exported to Spain, as was also a common kind, called sleeked dowlas. Dowlas of the same quality, 1⅛ and 1⅛ ell wide, destined for Italy and Spain, was sent in considerable quantities to Barbary, and in particular to Algiers and Tunis, by way of Leghorn, where it was principally used as winding-sheets for the dead. Three-quarter dowlas was the fourth kind made in Bohemia. It derived the name of "Morlaix" from the town of Morlaix, in Brittany. It was mostly exported to Portugal, where it was called " Pano Ferro."

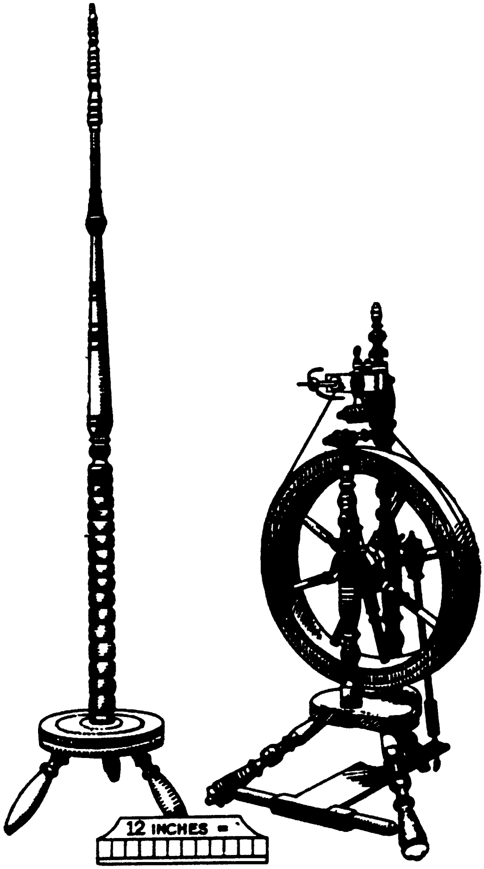


FIG. 47. SPINNING-WHEEL AND SEPARATE DISTAFF, FROM PARSCHNITZ, BOHEMIA.

This wheel presents a feature differing from most others. In spinning with flyer and bobbin, either flyer or bobbin must run somewhat faster—viz., there must be flyer lead or bobbin lead—otherwise the yarn would not be wound on the bobbin. In most spinning-wheels there is bobbin lead, the wharve or pulley of the bobbin being a little smaller in diameter than that of the flyer, or rather of the spindle, of which the flyer forms a rigid part. In such instances a single band is passed twice round the wheel and once round each wharve; the bobbin, therefore, always leads, and takes up the spun yarn. The other system of flyer lead employs only one band, driving the spindle and flyer; the bobbin is loose on the spindle, and revolves by the pull of the spun yarn. To check the speed of the bobbin a brake or drag is applied, and this drag is increased as the bobbin fills, getting larger in diameter, with an inclination to increased velocity. This latter method is, without doubt, the more correct.

Möbel linen was largely woven in Bohemia; it was made with dyed yarn interwoven, forming stripes or checks, and was divided into three different qualities—common, middling, and fine; but the price was fixed according to width, colour, and nicety of pattern. If there were several colours in a piece, the price was higher than for that which had only one. The chief markets for this linen were Italy, Spain, America, and the West Indies, where it was made use of for all domestic purposes. There were also manufactured Arabias, similar to the Möbel linen, except that the stripes in these were of red colour, interwoven with Turkish yarn. Boutons, also of Bohemian make, were chiefly exported to America and the West Indies, where they were only used for seamen's shirts, cloths, etc. Weben linen, made in Bohemia, was mostly exported to Italy.

By way of the Vistula to Dantzic came hempen linen and yarn from Galicia. The principal goods passing through Dantzic were grain and wood, but fair quantities of linen passed through that port, tables of which will be found in the German section, page 429. From the manner in which the returns are made we cannot determine the place of origin of these linens. The Ukraine and Lithuania must have been responsible for the exports of Dantzic; compare pages 428 and 429 in German section. It is to be regretted that there is no available information of what must have been a large Bohemian linen trade to the northern ports. Anderson, writing of Bohemia and Moravia, strangely ignores the linen industry, and, except for his mention of a linen manufactory in Vienna, his writings would lead one to suppose that the whole of Austria was devoid of that industry, He concentrates solely on the trade in the Austrian Netherlands, which in this work is more conveniently dealt with in the section of the Low Countries. MacPherson is equally silent regarding the Austrian linen trade. Coming to the more southern and western portions of the Austrian Empire, we have no information at command to enable us to state with definiteness that linen was manufactured commercially. It may be that Bohemia and Moravia supplied the linens required, these two countries being heavily subsidised in their linen manufacture by the Empress Maria Theresa, and afterwards by her son, Joseph II. Certain lawns, and bleached and brown linens were imported from Silesia, in fairly regular quantities, from the years 1748, but as these are catalogued with Silesia's Swiss exports we are unable to separate them. It is well known, however, that throughout

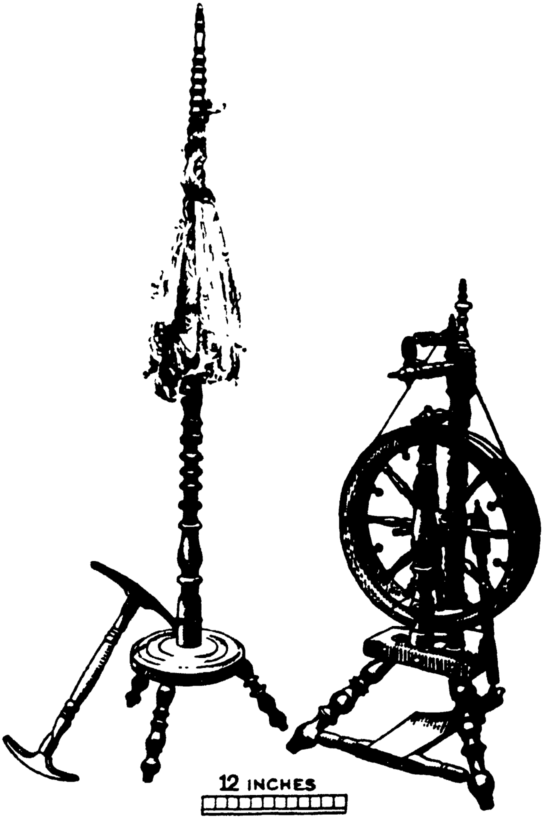


FIG. 48. SPINNING-WHEEL, MEASURING STICK, AND DISTAFF, BOROWITZ, BOHEMIA.

Although in the midst of machine-spinning, the older method still survives, but in diminishing quantity, there being plenty of employment for female labour.

the Austrian Empire a large domestic manufacture of linens was, and to some slight extent still is, existent. Being purely of a domestic nature, it is not possible to give any accurate details of its volume.

Some idea of what this industry may have been can be gathered from what it is now. From the Journal of the Irish Department of Agriculture, Vol. VII., 1905, we find the following: "In Austria, hand-spinning is still carried on, to a small extent, in Silesia, Moravia, Tyrol, Bohemia, Upper and Lower Austria, Carinthia, and probably also in Styria. It is impossible to say to what numbers the yarn is generally spun, as there are no data available, owing to the purely domestic character of the industry. It is, as a rule, used to make linen for domestic use. The product is not intended for commercial purposes at all, with the exception of some coarse yarn (about numbers three to six) spun out of tow, which is made into a rough cloth in poor districts, in the Bohemian and Moravian mountains, and sold to peddlers." In earlier divisions of this work mention has been made of the two-handed spinning-wheel—that is, a wheel with two bobbins and flyers, which, according to theory, enabled the spinster to produce double the quantity of yarn in a given time. We have seen that Leonardo da Vinci sketched a wheel of this kind. In a book, dated 1681, in possession of the British Patent Office, there is a sketch of a woman spinning at a two-spindle wheel. In various works dealing with the linen trade of old, these two-handed spinning-wheels are mentioned; often as something new and important, and about to revolutionise the industry by doubling production. Yet there seems no trace of them anywhere except in one district of Upper Austria. The wheel is shown on following page.

In the Tyrol a fair amount of hand-spinning and weaving is still carried on in the cottages of the peasants.

Some few years ago a gentleman in the writer's house, noticing the wheel described on p. 449, exclaimed, "Why you have got my mother's wheel there." As a little boy he was one of the company of that memorable exodus from the Tyrolese Zillerthal. In the Oetztal, in Tyrol, flax-spinning by means of the wheel is still an extensive domestic industry. In the market-place of Botzen are exposed quantities of flax, which the peasants from the surrounding districts purchase for spinning. It is the general practice to permit at least six successive growths of other crops to intervene between sowings of flax.

Various rotations are recommended in different places, in accordance with the soil. The Belgian farmers are particularly careful

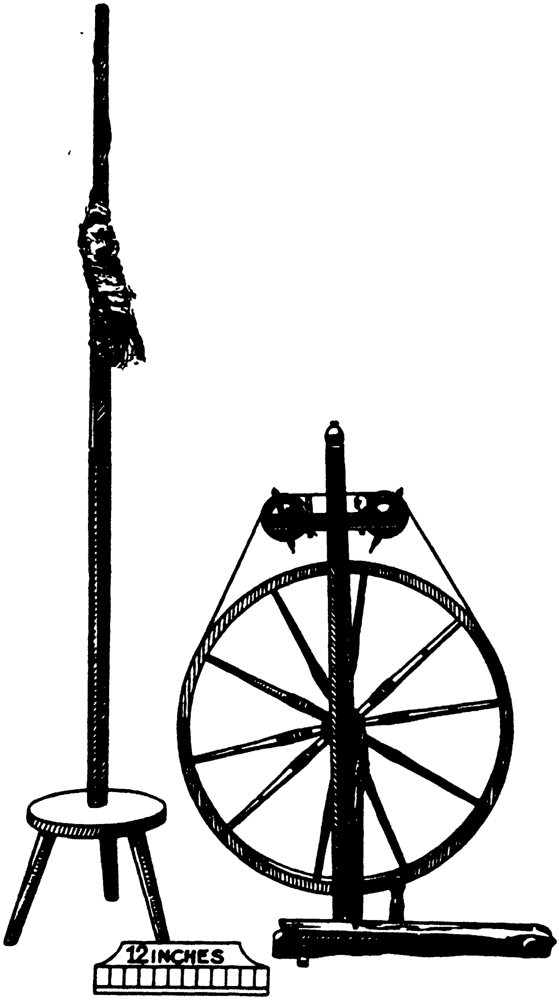


Fig. 49. Spinning-Wheel with Two Spindles, inscribed "Made by Josef Auinger, 1904."

This wheel, with its separate distaff, comes from Prambachkirchen, in Upper Austria. Some idea of the amount of hand-spinning in this neighbourhood may be derived from the fact that Josef Auinger makes over 30 new wheels every winter, two-thirds with two spindles for finer yarn and one-third with one spindle for coarser yarns. Most of the wheels in use in that part of Upper Austria have two spindles. The Linen Board Proceedings of Ireland speak of the introduction of wheels with two spindles, but they seem to have made no headway; with the sole exception of this district of Austria, they seem to be unknown throughout Europe.

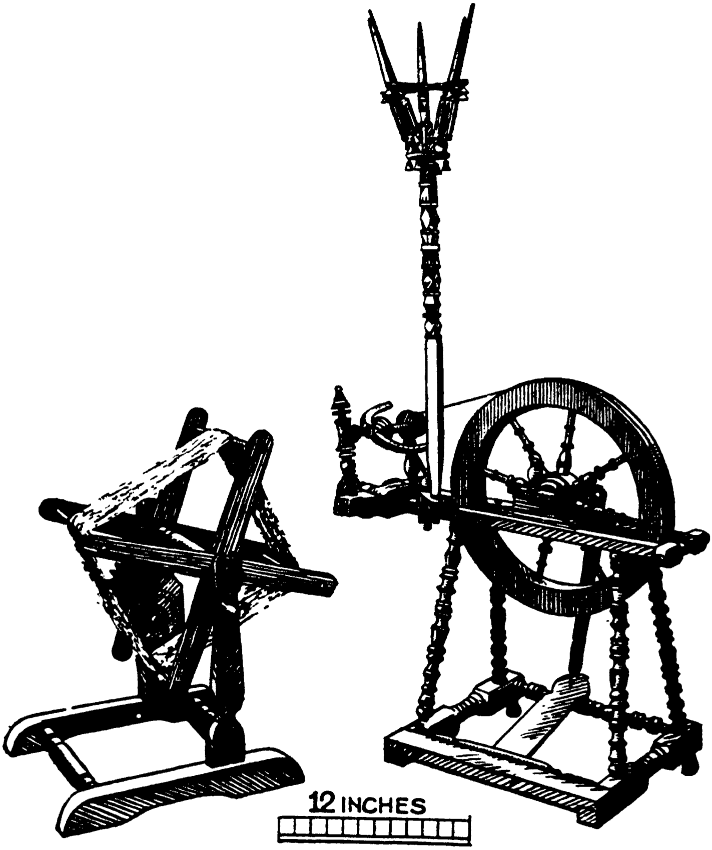


FIG. 50. TOW SPINNING-WHEEL AND REEL, FROM ASCHAU, TYROL.

This wheel is used for tow-spinning, as the distaff, or, as it is called, tow-fork, shows. The tow is thrown on this fork, and is drawn out in a similar way o the longer flax fibre. This tow-fork is painted and ornamented with little imitation wooden bells, so often affected by the Tyrolese. Spinning-wheels of this type, with wheel and flyer on the same plane, are generally considered peculiar to the Tyrol. In 1837, four hundred Tyrolese left their homes in the Zillerthal, the valley of the River Ziller, owing to religious disputes, and wandered many hundreds of miles, till they found a home amongst the Riesen Gebirge (giants' mountains) of Silesia, which home they called Zillerthal. Here, and even over the giants' mountains of Bohemia, are to be found many spinning-wheels of the Tyrolese type.

in this matter. In the Courtrai districts the occupancy of the land with flax varies from five to ten years, the average being about eight years. In Eastern Flanders it is five to nine, and in Brabant five to eight. In some other countries a much longer time is allowed to elapse before re-cropping, it being supposed that the long fibrous roots of flax remaining in the ground contain a substance harmful to the next year's growth. Charley, in his work, *Flax and its Products*, thus treats of this matter: "The usual system is not to sow two crops of flax on the same soil, without an interval between of from six to ten years, so that the land under ordinary agricultural rotation is regularly receiving from the different manures applied a part of the special nourishment yielded to the flax, and in the time just specified is again ready to support another similar crop, without any restorative application to the soil." This point is much dwelt upon by the intelligent flax-producing community of ancient Flanders. The Société Linière of Brussels, in its printed recommendations, states: "Above all things the rotation of crops must be scrupulously observed. If seven or eight years be allowed to elapse before again sowing flax in the same field, it is certain there will be a good crop; but the less the interval between the two crops, the less is the second to be calculated upon, either for quality or weight." Now in the Oetztal, in the Tyrol, it has been known for centuries back that flax is cultivated year after year on the same soil with every success. This fact induced Mr. C. Hoffmeister, of Trautenau, in Bohemia, to inquire into the matter, and the result of his labours led to a treatise on the subject, which he read before an International Chemical Congress, held in Rome, in 1906. Briefly the statements are these. The peasants in the Oetztal permit their land to be thoroughly, and for a considerable period, irrigated before sowing the second crop of flax-seed. This is easily accomplished by means of the melted snow and rain rushing down from the mountains. Mr. Hoffmeister made some experiments which the writer had the privilege of witnessing at a certain stage. He constructed half-a-dozen tubs, filled them with earth, and sowed flax-seed in them. The next year he thoroughly irrigated three of these, by immersing them for a period in water; the other three he left as they were. The result was clear, for the next year's sowing showed that the irrigated tubs produced an equally good flax, while that in the other three was extremely poor. A third year's trial showed the same result, with considerably increased difference in the qualities, thus proving that a

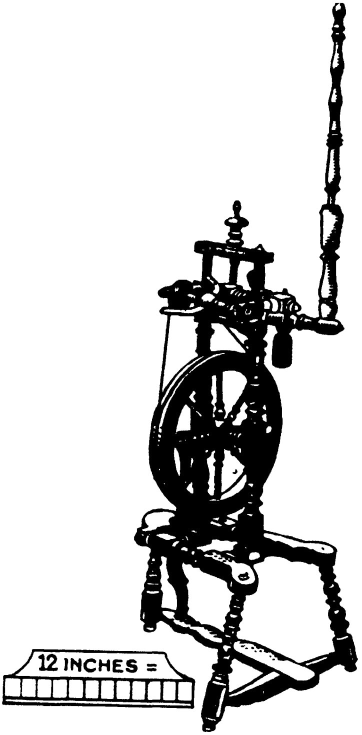


FIG. 51. SPINNING-WHEEL, KALTERN TYROL.

All through Tyrol the spinning of flax on the wheel is carried on very extensively. The hard, snow-bound winters permit of little outdoor employment, except such as is derived from forest labour; so the women spin and the men weave as of old. In the town of Botzen, in the middle of Tyrol, the flax in small bunches is exposed for sale in the shops and in the markets, for the use of the women who come in from the country to do their day's shopping.

certain harmful substance evidently contained in the long fibrous roots, when completely washed out, left the soil in a condition to grow flax year after year without detriment. We mention this merely as an interesting fact connected with Tyrolese flax growing. It would, of course, be impossible on all flax lands to produce similar results, nor would it be necessary when a proper rotation of crops serves the same purposes.

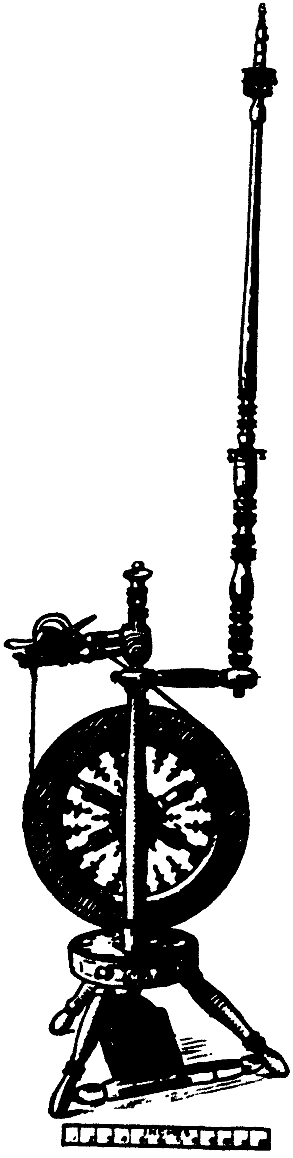


Fig. 52.
Tyrolese Spinning-Wheel.

"The Hungarian linen industry had at one period been fairly general, especially in the counties of Szepsi and Sáros, where the trade was flourishing. The trade of the country, however, had considerably decreased, owing to heavy import duties placed on wines, grain, and other commodities, formerly largely exported into Silesia and other districts occupied by the Prussians. The linen industry got into the hands of foreign traders, particularly Greeks and Servians, who bought up the hardly-wrought products of the poor peasants for a mere song, and made immense fortunes thereby" (*Hungary in the Eighteenth Century*, by Marczali) From the same source we learn that, in the first half of the eighteenth century, the manufacturing districts of Hungary differed very little from the adjoining countries of Moravia and Bohemia. When Maria Theresa ascended the throne, in 1740, Prussia, Bavaria, Saxony, and Sardinia put forward claims to portions of her dominions. The Queen made a pathetic appeal to her chivalrous Hungarian subjects, who eagerly responded to her call, and in great measure, by placing a large army at her disposal, prevented such complete spoliation of the Austrian states as might otherwise have occurred. In return for this fidelity the Queen exerted herself to promote the welfare and commercial prosperity of Hungary. She gave to that nation Fiume, in order that they might have a seaport for their commerce, and granted considerable bounties to encourage manufacture. During her reign there was a great increase in the number of craftsmen to supply the growing necessities of the population, and the increase of industry, especially in the south and north-east, was enormous. The quotation following is taken from Marczali's work:—

> "The returns prepared by the council treated most exhaustively of flax and hemp spinning, returning to this subject over and over again. The greater part of the population of the county of Szepsi were engaged in this industry. The county authorities considered it imperative that a book treating of this craft should be distributed among the people, seeing that in that county the women, too, could read and write. As it was, a large amount of money was still being sent to Poland to pay for linen, and only the lower classes wore home-made cloth, while the bourgeoisie preferred foreign materials. The other counties, too, recognised the importance of this question. Sopron was willing to offer a reward for the best spinners, and the county of Koros was ready to grant exemption from taxation to those who excelled in this trade, and thought it desirable that instruction in it should be given to children too. The proud district of Jaszkunsag, on the other hand, wanted to make it an employment for the county prisoners. According to another report of the Consilium Locumtenentiale, the counties of Pozsony and Nyitra produced the most flax and hemp, and actually exported linen. The counties of Sopron and Varasd supplied their needs by importation from Austria. The counties of Bács, Bihar, Borsod, and Zemplin complained that it was useless for them to produce these articles, as they could not sell them. In general the country exported not only coarse, but fine linen, and large quantities of the raw material (flax) were also exported. According to the unanimous opinion of the counties, the Governor of Fiume, and the Consilium Locumtenentiale, the establishment of factories, which would be an easy matter, would remedy the evil. The moment the factories were there, the price of the material would rise and production advance. The most suitable place for this purpose was Kassa, where capital enough had already been collected; only it would be necessary to grant exemption from taxation for a time. As concerning the reports submitted, particularly those of Szepsi,

> the opinion of the council was that the Government should summon from Silesia, as the chief linen-producing country, an expert, at a good salary, who would impart instruction with reference to the finer and more expensive articles in the counties of Szepsi and Sáros, where spinning was extensively practised by the inhabitants. As we see, every fundamental condition for the development of the manufacture of a very important article of trade was to be found here. There was plenty of raw material, and the inhabitants, too, were adepts at this branch of industry everywhere, and not in scattered localities. When the Emperor Joseph II. was informed that a certain mining town was becoming rapidly impoverished, the first idea that occurred to him was to alleviate its lot by furthering the linen and lace industries. In very truth, this seed, if not trodden under foot, was capable of producing a majestic tree. Very little support indeed was asked for it, for what would the expense entailed by calling in a Silesian weaver, or by a few years of exemption from taxation be, in comparison with the enormous state grants which the Austrian industries, in particular that of weaving, were continuously receiving?

(In 1781 alone, the Emperor distributed 100,000 florins among the spinners of Moravia.)

> "When the Chancellory submitted the proposal in question to His Majesty, the answer was as follows: 'Until Hungary is placed in a position equal to that of the other Hereditary Provinces, the Treasury cannot support any handicraft which would curtail the means of subsistence of the Hereditary Provinces.' Hungary, which in economic respects was a colony, had to pay dearly for not being entirely such in political respects. The history of the Merchantilist system offers an analogy to this kind of treatment elsewhere. When the English Parliament complained to William III. that the Irish wool factories were developing, the King replied as follows: 'I will do all that in me is to discourage the woollen manufacture in Ireland.'"

It must be remembered that William III. encouraged a linen industry in Ireland to replace the woollen industry he destroyed. Joseph II. sought to stifle the already increasing linen trade of Hungary, which, largely owing to low cost of living in Hungary, and the industry of the people, was interfering to the detriment of the same industry in his other dominions. From the death of Maria Theresa the policy of Austria was to develop a purely Austrian manufacture, to the detriment of Hungary. At the beginning of the eighteenth century, Hungary was almost entirely dependent on her own national industries—towards its close she was gradually becoming a mere market for the manufactures of the Austrian Provinces (Marczali). Exports from Hungary, even of raw material such as wool and grain, were prohibited by Fiume, if such exports interfered with a similar commerce in Austria. The linen-trade of Hungary suffered with others, and gradually declined to the level of a cottage industry, the shadow of which remains until this day.

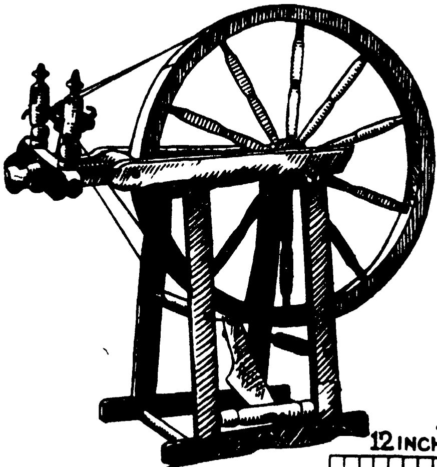


FIG. 53.
SPINNING-WHEEL FROM HUNGARY.

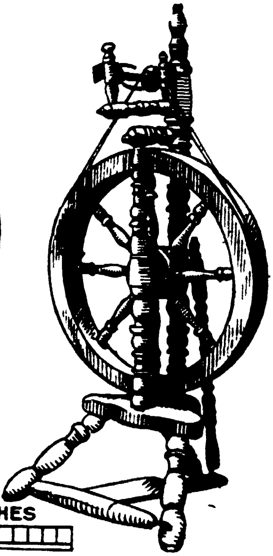


FIG. 54.
SPINNING-WHEEL OF GERMAN TYPE, FROM HUNGARY.

The wheel figured 53 in principle is not unlike the Tyrolese wheel shown on page 449, except that the wheel projects beyond the stand or stock, which must of necessity be open; this makes the spinning-wheel unstable.

A very large domestic industry is carried on in Hungary by means of the spinning-wheels to-day; nearly all the linen used by the people is home spun and home woven. The industries of Hungary, especially the textile industries by machinery, remain very undeveloped. The class of linen woven is coarse, but is serviceable and cheap, the raw material being obtained at low prices.

RUSSIA

CHAPTER L.

Plans of Peter the Great

In 1553, just before the death of King Edward VI., three British ships set out to find a north-east route to China. The commander, Sir Hugh Willoughby, and the crews of two of the ships, were frozen to death in an obscure Lapland Harbour, called Arcina Keca. Sir Hugh was discovered in the summer by some Russian fishermen; he was found seated in his cabin, with his diary before him. The remaining vessel, under the command of Richard Chancellor, was driven into the Bay of St. Nicholas, or White Sea, on the Russian coast, where no ship had ever sailed before, and thus was opened up the first direct communication with Russia. Landing at the Abbey of St. Nicholas, near Archangel, then only a castle, Chancellor made his way by sledge to Moscow, and visited the Tsar Ivan the Terrible, who, delighted at the prospect of a direct maritime commerce with Europe, granted privileges for English merchants to trade, and sent letters to that effect to Edward, who had, however, in the meantime, died. The expedition had been set on foot by a company of gentlemen and merchants, with a capital of £6,000, divided into 240 shares of £25 each. The company was known as that of the " Merchant-Adventurers, for the discovery of lands, countries, isles, etc., not before known or frequented by any English," but usually it has been called simply the Russia Company, to which an ample charter was granted in the first and second years of the reign of Philip and Mary. Previous to this discovery, the trade of Northern Russia had been carried on through the Livonian ports on the Baltic, in possession of the Teutonic Knights of St. Mary of Jerusalem. The principal items of export were furs and hemp. No mention appears of any linens exported from Russia or even manufactured in that country, but there is evidence of an import of coarse linens into Russia, even as late as 1674, when England alone sent 23,330 yards to Archangel. It was not until the advent of Peter the Great that any ideas of creating a trade, more especially an export trade, in linens, took any definite shape. At that time the industry rose and rapidly progressed in a manner most phenomenal. Before Peter the Great assumed control, Russia had no maritime outlet except that of Archangel, approached by the Arctic, then called the Frozen Ocean, and open for navigation but a few months in the year. A map of the country at this period shows the small strips of Esthland and Angermanland, in possession of Sweden, dividing Russia from the Baltic, and which Gustavus Adolphus hoped, by God's help, would prove too wide a jump even for a Russian. In the south the implacable Turk shut Russia out from the Black Sea. To gain a northern outlet on the Baltic was vital to the interests of Russian commerce, and Peter the Great, after several bounds, at last took the jump and acquired the coast line belonging to Sweden. This latter country then receded from the position of a first-class European power: while Russia emerged from her Eastern seclusion, and took her place politically and commercially with the Western states. Considerable internal dissension had to be overcome, for the Russian was averse from changing his semi-oriental business habits for that activity necessary to compete with the West. A great reactionary party sprang into being, which had to be dealt with by stricter means than mere persuasion, and Peter whipped them into civilisation with the knout. At the head of the Gulf of Finland, on a low and marshy delta formed by the river Neva, the foundations of St. Petersburg were laid in 1702, and in a surprisingly short time, in the midst of a sterile waste, a city was reared which became the chief port of Russia. The natural waterways through the country are extensive, and to connect these by means of short canals, thus making navigation possible throughout the whole empire, was a work begun by Peter the Great, but not fully completed when he died at the comparatively early age of fifty-three. The canals projected by him were the Ladoga Canal, another by means of which a communication has been formed between Moscow and the Don, that of Vishnic Volotchok, by means of which a passage has been made from the Caspian into the Volga, and thence, in conjunction with some rivers and lakes, into the Neva, and so into the Baltic. The canal to Cronstadt was also projected by him. The bulk of all this vast work was completed by Catherine II., although the original plans were not strictly adhered to. The great canal which unites the Neva and the Volga by the Lake Ilmen and the canal of Vishnic Volotchok, connects the Caspian and the Baltic Seas in a navigation of 1,434 miles. Another unites the Neva with the Volga by the Ladoga Canal and by the canals of Tichwin and Sjás, and a third unites the Neva and the Volga by the Lake Onega and the Maria Canal, which joins the rivers Wytegra and Kowshaga. Then came the junction of the Baltic with the Black Sea, and the union of a vast amount of rivers throughout the European portion of the Empire. All these great schemes of interior navigation were carried out and in operation during the period of which we write, and a great part of European Russia had a communication with one or other of the seas by which it was bounded, and practically all the produce of the country was conveyed by means of water carriage. The following table of vessels passing through the Vishnic Volotchok Canal alone, through which the principal trade of the Empire was carried, will convey some idea of the traffic carried on through this canal:—

VESSELS AND FLOATS.

Years.	Barks.	Half-Barks.	Floats.	One-mast Vessels and Boats.
1787	2914	357	1984	178
1788	2846	317	2719	264
1789	3812	253	1560	249
1790	2927	339	1390	166
1791	4025	305	1485	178
1792	2553	456	1107	168
1793	3488	439	2005	179
1794	2945	402	1964	167
1795	3199	375	1562	212
1796	2983	260	1665	218
1797	3958	382	1676	248

Many of these vessels, or barks as they were called, carried from 100 to 400 tons of cargo. They were perfectly flat-bottomed and some of great length. The depth was seldom more than four feet. The rudder was a long tree, like an oar. These vessels were rudely and cheaply constructed on purpose, as they only conveyed one cargo, their cost was from 100 to 300 roubles each, and when they arrived at St. Petersburg, or Archangel, or Riga, and their cargoes were discharged, they were broken up and sold for firewood and other purposes, seldom fetching more than 20 to 25 roubles each. During the winter time a good deal of the produce was carried by sledge roads to the places where the barks were built, and there loaded, to be ready to start as soon as the ice gave way. Flax and hemp, especially from those districts which did not enjoy water communication, came by sledge to the Baltic ports or to Archangel. During the winter there was a constant and active sledge traffic carrying imported goods to even the remotest parts of the Empire, particularly those which had arrived in the latest ships. Naturally the inland water carriage was cheaper than that by land, although considerably more tedious, but the cost of the conveyance over the sledge-roads was no impediment to commerce. The average charge from Moscow to the sea, a distance of between 400 and 500 miles, was 45/- a ton, and very much cheaper than sea freight for the same distance in those times. These low costs of carriage in summer and in winter were favourable to the export trade as well as to that amongst the inland provinces with each other. Thus circumstanced, even before the canals were in operation, Russia was in a position favourable to schemes of manufacturing development. Although the time spent by Peter the Great in Holland and in England was primarily occupied, at Zaandam and Deptford, in studying shipbuilding with the object of constructing a powerful navy, he was keenly alive to all that brought about the manufacturing and commercial prosperity of the countries he visited. Holland at that period (1697) was a linen-manufacturing and trading country of renown, and from thence was transported a colony of Dutchmen who settled in the government of Archangel, near to the only port of outlet then possessed by Russia, and here, for more than a century after, the finest and best linen was manufactured, equal to any foreign make. Similar manufactures of sail-cloth, flems, ravenducks, and other classes of linens were also introduced by Peter the Great from Holland and settled about Kestronia Jatsk, and other places. The manufacture of ropes, cordage, and sail-cloth for the infant navy was rapidly pushed forward. We have a record of the growth of this industry in the journal of Joseph Marshall, who visited Russia in 1768. He speaks of a considerable manufacture at Moscow of various hemp fabrics, particularly sail-cloth and sheetings, which employed several thousands of looms and many thousands of people. The hemp was mostly brought from the Ukraine; this land, at one time the frontier country between Russia and Poland, fell to the lot of Russia during the two partitions of Poland, and is now, or was before the war, practically comprised in what is known as Little Russia. Both banks of the Dneiper grow hemp excellently. The waterways between Moscow and the Black Sea enabled the sail-cloth to be conveyed cheaply to where the bulk of Russia's fleet lay. In his *View of the Russian Empire*, published in 1801, William Tooke, F.R.S., makes some reference to the sail-cloth and cordage manufacture. He says: "In Russia are many large works of this kind. Some very considerable are maintained by the Crown, particularly at the Admiralty at Archangel, St. Petersburg, etc. At Novgorod likewise is a large manufactory of sail-cloth, belonging to the Crown. Of private works of this nature there are nine in Archangel, one in each of the towns of Kolomna, Tamboff, Yelatma, Briansk, Nijni-Novgorod, Saratoff, and eleven in St. Petersburg. Besides these there are several rope-works; one of the most considerable is in Kaluga, belonging to the rich merchant Luginin, another is near Narva, etc."

A glance at the map will show how wide-spread this industry was. The enormous quantities of hemp exported from Russia, particulars of which will be given later in tables, gives an indication of what was grown in the interior, these exports being but the superfluity after home consumption had been satisfied. Besides the seed which was exported for sowing and crushing, quantities were retained and crushed in the country. In 1803, nearly two million gallons of hemp-seed oil were exported, chiefly to Germany, and although—says our authority (Oddy)—"this quantity appears very considerable, it is but a small proportion of the whole that is produced, the interior consumption being immense for the ordinary purposes, but particularly for the lower classes during their fasts." In the year 1733, hemp was with difficulty sold at St. Petersburg at £11 per ton. From that time the rise in the importance of the crop was very great, and hemp became one of the most prominent items of Russia's exports.

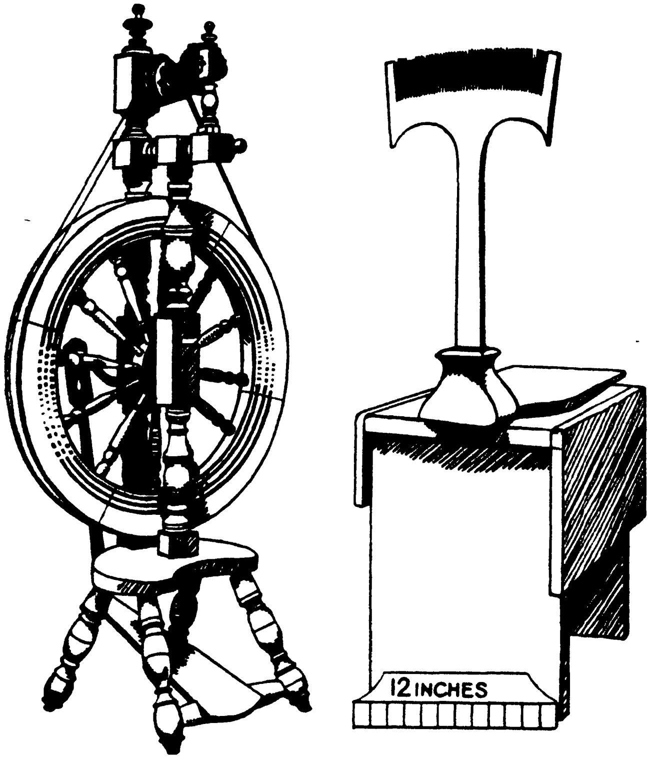


Fig. 55. Spinning-Wheel and Wooden Combs, Melenki, Vladimir Government.

The spinning-wheel here is of German type. The flax is combed as in the manner described under Fig. 57 (page 469), and the comb affixed to the bench is used as the distaff, the wheel being brought close to it.

CHAPTER LI.

Growth of Linen Manufacture

To return to our more immediate subject of linen manufacture, Tooke speaks of the manufactories of linen being numerous, and some of them great and important. "They generally confine themselves," he says, "to coarse and for the most part striped linens. Next to these, table-cloths, and extremely fine ones, rich napkins, much printed linen, naboika, etc., fine linen very little, and cambrick not at all. The finest and best Russian linen, which may be compared with the Silesian and Warensdorf goods, comes from the Government of Archangel, and is called Gorodskoi Polotno; it is likewise as broad as the foreign, but by far not so finely bleached and got up. Besides, tolerably fine linen is made by the Boors in several other parts, as at Liskova on the Volga, but not above half an arshine wide, though Peter I., so long ago as 1718, ordered that all linen should be woven as broad as the foreign. In 1764, the export of Russian linen was about 30,000 arshines, but in the year 1784, of various sorts greatly exceeded three millions of arshines, and from 1758 to 1778, in twenty years, 260,909,180¼ arshines. In the several parts of the Empire there are 64 linen manufactories."

An arshine equals 28 inches. In speaking thus of a linen manufactory it is not to be understood that the goods were of necessity made in a factory; the word is used to distinguish the commercial from the purely domestic manufacture. In the former instance a merchant would employ a large number of looms, worked by the peasants in their own homes, and dispose of the goods through the usual commercial channels. The custom still prevails even in Ireland, to this day. In a footnote in Tooke's work, writing of cambrics, he says: " However, a cambrick manufactory was set up at Yamburg at the expense of the late Empress. It employed the flax of the country, and the specimens which I have seen of it, says Mr. Albaum, were equal to the best Flemish cambrick; but it is astonishingly difficult to accustom the girls and the women to fine spinning. All the species that have been hitherto made there are consumed by the Court alone; none is sold." There would appear to us to be nothing astonishing in the difficulty experienced in teaching the spinning of fine cambric yarns. We have seen the failures in the same direction in England, Ireland, and Scotland. Astonishment indeed might have been expressed had the Russian peasants succeeded. We have spoken before of the very rapid progress of Russia's linen trade. We are unable to deal with the home consumption, which must have been large. Cotton clothing, now so largely used by the peasants, was little known. The manufacture of this fabric came slowly into Russia. Towards the end of the eighteenth century there were only eight cotton manufactories in the whole Empire, making mostly chintzes and common goods, also coarse muslins, Manchester goods, stockings, etc. The cloth (woollen cloth) manufactories, of which there were fifty-six, made principally for the army and only coarse goods; fine cloths were imported annually to the value of two millions of roubles. An amount of the home-made material was manufactured from goat's hair. In March, before the animals cast their coats, it was the custom to comb them with large wooden combs, by which means the hair was obtained which had served them during the winter. Part of this hair was used for making hats and stockings, but none of it for peasants clothing, which, in the summer time, was composed of linen, to which, in the winter, sheep-skins were added, and boots of leather, felt or a species of bast plaited together to form boots and leggings combined. The Russian peasant, with the exception of the sheep-skin, wore this clothing night and day; even at the present time this custom prevails largely, and is certainly not one to be recommended on the grounds of health or hygiene, but the Russians all possess one recommendable custom, they take a bath once a week, not a superficial bath, but a thoroughly scouring steam one, and then they put on clean clothing. If a peasant is too poor to own a bath-house, or, as the manner often is, to have one in common with others, he simply crawls into the oven with a bucket of water, and soon raises steam enough for all his requirements. An oven is a feature in every Russian house; it is of dimensions large enough to roast one or two men. The wooden fire is set alight and burns until the whole oven is hot enough for baking, then the fire is withdrawn, the oven swept clean, and the bread or other articles to be cooked put in. It may seem repugnant to many that a poor man should thus use his baking oven for his steam bath, but the poor peasant would think it more repugnant still not to have a bath at all; before the oven can be used again for culinary purposes the cleansing fire makes it quite fresh. It must be a great consolation to know that once a week, in that great Empire, every man, woman, and child is thoroughly and absolutely clean. Can any other nation make that boast? The usual peasant's bath-house is not by any means luxurious, but serves its purpose amply, as anyone who has had experience can fully testify. It consists of a little log hut, capable of containing two people; on the floor is a stone slab about three feet square, and underneath this the fire is lighted. The stone soon gets hot, and by pouring water on it at intervals copious steam is generated. The excessive heat a Russian will endure to cleanse himself properly is simply marvellous, as is evidenced by the oven-bath. The cooling process is simple and effective,—a roll in the snow or a plunge in a river and then a rush for the house. As stated, it is not possible to gauge the amount of linen consumed by the people themselves. The vast bulk of all the linens used for this purpose were home-manufactured in the winter months, and no note whatever was taken of it. We can estimate, however, by the population. We gain a knowledge of the number of inhabitants through the enumerations or revisions, which first began in 1723 and were repeated every twenty years. The occasion of these revisions was the collection of a poll-tax, which every male, from the babe in arms to the decrepit old man, was obliged to pay annually; that is, those of the peasant and burgher class. There were excluded the nobility, the clergy, the whole military and civil establishments, schools and seminaries, and the greater part of the nomadic nations, as well as the whole female sex. In the first revision Livonia and Little Russia were left out, they, at that time, paying no poll-tax. In the revision of 1723, the number of persons subject to taxations was given as 5,794,928. At the second revision in 1743 there were 6,643,335, and at the third revision 7,363,348. We double these figures by allowing for females; and it was computed, taking the last named revision, that if there be also added those not enumerated and inhabitants of the provinces not subject to the tax, there would be a total of about twenty millions of peasants and burghers in 1763.

A revision on better principles was made in 1783, and with greater accuracy. This took in all the provinces subject to Russian rule, and included the female sex and the ranks and wandering tribes till then omitted. This census took six months to complete. In the forty-one vice-royalties then comprising the Russian Empire, there were found to be of male inhabitants as below:—

Merchants	107,408
Burghers	293,793
Free Countrymen ...	773,656
Exempt from taxes ...	310,830
Crown Serfs	4,674,603
Private Serfs	6,678,239
	12,838,529

The number of females was only made known in some of the Governments, but by doubling the above figures we find a total population in 1783 of 25,677,000. As these enumerations were made for the purposes of taxation, and everyone so accounted for, and subject, paid the tax, it may be granted that the list is not larger than it actually should be, but on the contrary may be smaller, as no doubt means would be found to evade the tax. During the next period of twenty years, with the acquisition of nine new vice-royalties or governments, and the natural increase in the population, there must have been at the end of that period a population of 36,000,000 souls. These figures will give some indication of the vast amount of linen required to clothe this great mass of people before any export could be thought of. Coming to exports we can deal with actual figures, compiled by Oddy, from the Russian Customs House returns. We have seen that in 1764 the export of linens amounted to but 30,000 arshines, somewhat over 23,000 yards. At that time the population, according to the figures we have quoted, would have been slightly over twenty millions, counting peasants and burghers only. At that period the linen manufacture was, practically speaking, only able to supply home demands.

In thirty-four years after, over forty millions of yards were sent to St. Petersburg for export. At that time the population might be fairly estimated at thirty millions. In the year 1799, therefore, Russia supplied all her increase of population and exported more than Ireland did, more than one and a half times the entire linen stamped in Scotland. Ireland required eighty-seven years to arrive at a smaller result, with all the fostering care of the Linen Board, and an outlay of hundreds of thousands of pounds. In Russia the trade was spontaneous,—there were no bounties, no premiums, no money whatever spent on encouragement. The population in Russia being greatly in excess of that in Ireland contributed no doubt to the results, but it must be remembered that all this population had to be clothed, and clothed in linen, while the Irish wove their home-made woollens. The consumption of linen per head in Russia must have been very much more than in Ireland. Two other items would influence an expansion of the linen trade; namely, the cost of food and the necessity of indoor work in winter. Taking the first item we find that, in 1770, an acre of good arable land was rented at two shillings a year, and produce was proportionately cheap; bread cost about a farthing a pound, and mutton and beef somewhat more than three farthings, everything else being in proportion with food-stuffs. At these prices linens could be made at very low rates so far as cost of labour was concerned. The price of flax grown on the spot was another item of consideration. It was produced on low-rented ground, handled at low costs and came direct into the spinners' hands. The same flax, spun in Ireland, had a series of intermediate profits added to its prices, with addition also of expensive sea-freights and high insurance in those times of Napoleon's depredations of British shipping. The items, therefore, of cheap food and cheap flax produced in St. Petersburg a cheap linen which could be exported, with, of course, the disadvantages attached to the flax-export just mentioned, at rates fully qualified to compete in the home-market of foreign countries against import duties.

The other question of winter work was one of importance. For five or six months in the year all agricultural work is at a standstill, so that the spinning of linen yarns and the weaving of linen cloth became, amongst other industries, a matter of necessity. But, unlike

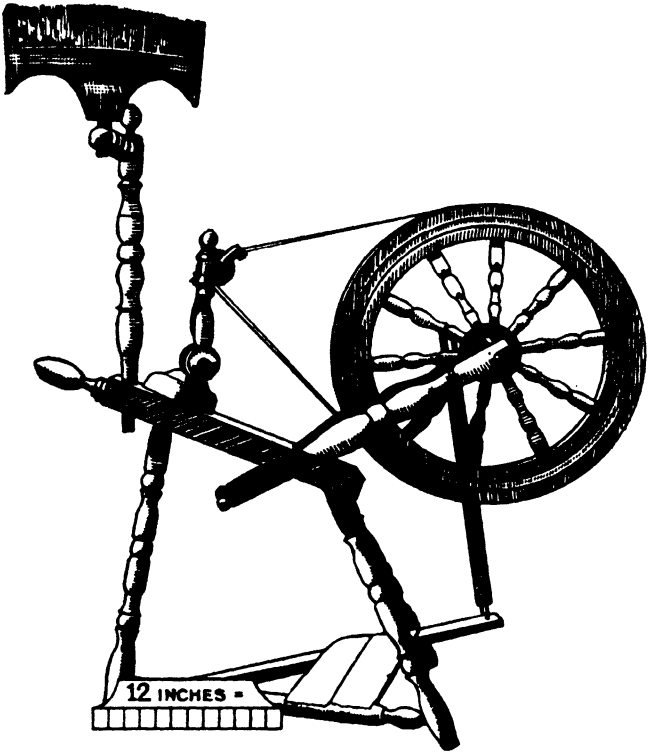


FIG. 56. SPINNING-WHEEL AND HACKLE OR COMB, FROM VELIKOE SELO, YAROSLAV GOVERNMENT, RUSSIA.

This wheel is of Dutch type, Russia having no particular type of her own. Russian wheels, however, are usually peculiar in one respect—the distaff is a wooden comb, and is used as such after the flax has been combed or hackled over it. Two wooden hackles or combs are used for the purpose of hackling.

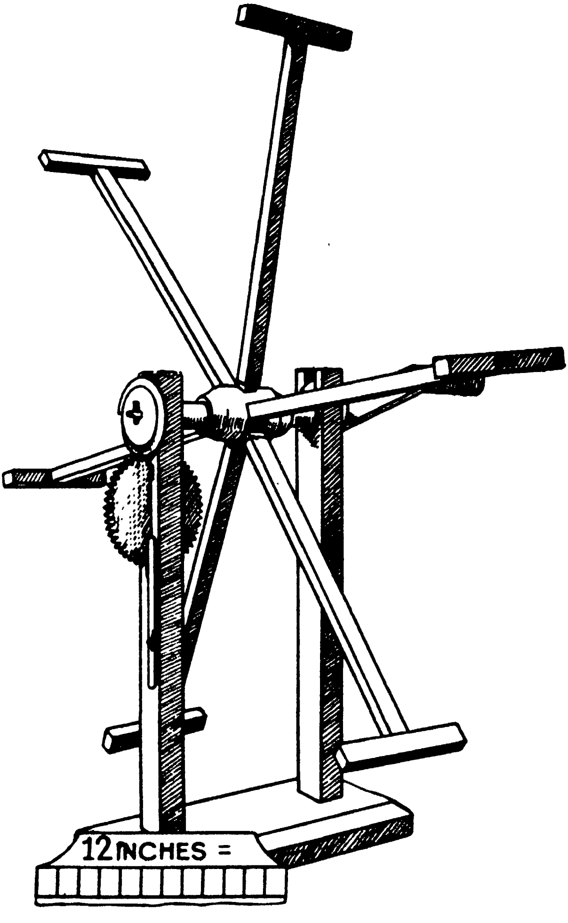


FIG. 57. HACKLE OR COMB PLACED ON A BENCH (see Fig. 55).

The flax is laid upon it, and with the smaller comb (at present in the wheel serving as a distaff) the flax is hackled, and when completed is transferred along with the smaller comb to the wheel. The idea is by no means bad, as the teeth of the comb separate the fibres and enable the spinner to serve them to the wheel with a minimum of entanglement.

The reel in this set is of very large dimensions, and has a peculiar mechanical motion for ascertaining the length of yarn reeled off.

Ireland, where only the linen trade was allowed to flourish, Russia was blessed with as many industries as the ingenuity of a really ingenious people would care to undertake. We have already mentioned woollens, and to a small extent, cottons; silk was not less important. To be mentioned also are gold and silver lace-making, manufacture of carpets, hats, and unglazed earthenware, the very old and extensive manufacture of leather and leather goods, cabinet-making, and tallow chandlery. Some hundreds of tons of tallow candles were exported every year from St. Petersburg, made by the women in their homes. These and many minor industries employed the people during the winter months, and, of course, detracted from the volume of the linen manufacture. We have given the quantity of linen delivered at St. Petersburg for export in 1799; the following are the descriptions:—

	Yards.
Linens, fine bleached, in rolls	97,222
Huckabacks	198,333
Printed Linens of all sorts	163,333
Broad	540,555
Narrow	1,210,222
Broad Diaper	1,317,555
Narrow ,, ...	1,403,890
	4,931,110

Besides which—

	Pieces.
Ravenducks, 28 in., 31½ in. and 36 in. wide, 50 arshines long	250,000
Flems, 42 in. and 45 in. wide, 50 and 57 arshines long	200,000
Drills, bleached and unbleached, 28 in. wide, 50 arshines long	250,000
Tickens of all sorts	14,000
Table Cloths	15,000
Napkins	46,000
Sail-Cloth	198,000
For Paper-hangers	28,500
	1,001,500

The above goods, enumerated in pieces, were estimated to contain thirty-six million yards, making a total of nearly forty-one millions. There were four denominations of Ravenducks, Flems, and Drills; viz., Kostromski, which was the best; Wesnikoffski, which came second, and Schouski, also Ivanovski, which two latter were equal, but inferior to the others. These linens received their names from the towns in which they were manufactured. In Kostroma, at the present time a large linen centre, there were fourteen manufactories. In Ivanovo, now a centre of cotton industry, and called sometimes the Manchester of Russia, there were twelve linen manufactories. The commercial success of a country autocratically governed being dependent on the will and temperament of the ruler, there was in Russia little incentive to advancement after the death of Peter the Great, in 1725. His untimely ending at a comparatively early age retarded many of the schemes for the advancement of the commercial and educational interests of the people; which he, with his progressive and enlightened ideas, saw were essential to the well-being of his country. All his forward plans had emanated from himself alone, and had been carried into execution at the point of the bayonet. After his death a reaction set in. By the terms of his will, his second wife, Catherine I., succeeded him. The anti-reform party caused her deposition in favour of Peter II., whose father Alexei, was Peter the Great's son. During his short reign, reaction was permitted through want of a strong, guiding hand—such a course of events is easy, and the constructive work of a lifetime may be crumbled away in a few years. Under the succeeding reigns German influence predominated, to the detriment of Russian interests. In 1741, Elizabeth, daughter of Peter the Great, ascended the throne, and in some measure restored Russia to Russian influence, which, however patriotic, meant a further setting back of the policy of her great father. Her nephew, Peter III., began, in 1762, a reign which in a very few months was cut short, by strangulation it is said, and his wife, Catherine II., mounted the throne, and guided the destinies of Russia for thirty-four years. This extremely astute and ambitious Empress was a Prussian by birth, daughter of the Prince of Anhalt-zerbst, and although brought up in her native land until she was affianced to the Grand Duke Peter, nevertheless exhibited entire sympathy with her adopted land, and was accorded the full loyalty of her subjects during her long reign. The exports of Russia up to this period were composed largely of raw products. The Hanseatic

League, when Novgorod was under its control, exported largely hemp and imported Western manufactures. When the League ceased operation the only outlet, as we have seen, was Archangel, until Peter the Great opened up the Baltic. The successful efforts of this latter monarch to develop industries had, at the time of his death, resulted in the practical cessation of the import of many manufactured articles, linen notably being amongst the number. It remained for Catherine II. to develop further the industries, and create a considerable and increasing export of manufactures from Russia to the Western states. This was a continuance of the policy of Peter the Great, interrupted during the intervening reigns. The strong reactionary party of Russia, including the nobles, who feared the diminution of prestige and power by any change in policy which had in prospect enlightenment or advancement, saw, however, a distinct gain to themselves in the encouragement of a linen export trade. Hitherto their serfs had made linen for domestic requirements only. In some districts where linen manufactories were established they had contributed also commercially. Now with a demand created, and increasing, abroad, the nobles compelled their serfs to weave for them, and became themselves the actual exporters of linens, or sold them through export houses, acquiring thereby considerable increase to their incomes, to be spent in a still more luxurious style of living. It is questionable if any other incentive than mere prospect of gain to the landholder could have brought about this increase to the export trade under the then existing conditions of landlord and serf.

CHAPTER LII.

Landlord and Serf

The following description of the relations between landlord and the serf, who tilled his own ground, is given in Marshall's *Travels through Russia*, written in 1769: " Many of the peasants have farms, but then they can only work them when their landlords allow. Three or four days in the week they labour on the lands of their masters, finding sometimes cattle and implements in consideration of being allowed the rest of their time on their own farms ; yet for these they pay a considerable rent in products, and are besides open to supplying all military travellers with horses, for which they get very spare allowance, and sometimes nothing at all. In a word, their state is so little better than the common labourers, who work constantly for their lords, that I did not find it a matter of envy to the latter."

These evils and abuses which had crept into a system originally introduced—and very properly—to abolish nomadism and fix the people on the soil, prevented the serfs from attempting to augment their scanty earnings by any additional labour such as linen-weaving in spare hours or winter days. The landlord extorted all from them but the bare means of preserving a life which he himself virtually owned. And so it came about that the very class which had formerly tried to frustrate any industrial progress as tending to weaken agriculture, now, finding that the profits arising from it could be made to run into their own coffers, were only too eager to give it full encouragement. The laws of Russia held the landholders financially responsible for the tax payable by every male on their estates. This power of collection, therefore, gave them opportunity of extortion, and the people were made to pay up to their fullest capacity. Money, as a rule, did not pass—the serf seldom possessed any—so he was obliged to render feudal services in lieu of it. Feudal service might mean anything and might include the weaving of linen, which could be demanded for nothing, or if the work performed was considered extra, it might be recompensed in a most disproportionate manner. The farm owned by the serf supplied himself and his family with the necessities of life ; so far as actual sustenance went, these necessities were few—rye-bread dipped in a vegetable soup, and for drink the ordinary household beverage known as quass or kvass, made from barley malt. What remained of his farm produce was paid to the landlord in lieu of rent. In the winter time little feudal service of an agrarian character could be demanded; the peasant during this period devoted himself, when not asleep—for a Russian can hibernate like a bear—to the manufacture of household linen. But when the possibilities of an export trade were opened up, the services of the serf in the winter time were called upon; remuneration, if given at all, was totally inadequate. Such action on the part of the noble or landholder was an unquestioned abuse of the privileges—we might say a further abuse of the privileges—with which the noble had surrounded himself amongst a powerless people. But there were, undoubtedly, circumstances to be pleaded in extenuation of such a proceeding. A serf had no outlet for the sale of his own produce, either of agriculture or manufacture. The small amount of surplus grain he grew and paid as rent could not be economically transported by him and sold. It was added with that of others to the quantities grown by the nobles and set afloat on the nearest navigable river. There was no incentive to the serf to do more work than bare necessity demanded—if he, of his own volition, wove a few webs of linen, he had no sale for them. But his inclination was rather not to weave in any circumstances, and even not to produce more from the soil than would satisfy his very modest requirements ; so that if these matters were left to his incentive, fully the half of the arable land would have become waste. The feudal system, therefore, had its advantages in compelling both agriculture and manufacture, and, where not dictated by insatiable avarice and tyranny, was necessary for the development of the country. But, unfortunately, wrong impulses prevailed; the money thus wrung from the people was not devoted, as it might have been, in part at least, to their betterment and uplifting. Besides the intermittent labour given by the poor to linen-weaving, manufactories employing continual labour sprang into existence. Some of these were owned by the Crown, on the Crown lands, and some by private persons, mostly indeed by the latter. This manufactory system had been instituted by Peter the Great, following the custom of the Western powers. Here the merchant either employed the weaver, or purchased his goods, and had them bleached and finished and prepared for home consumption or export. As these merchants were persons not belonging to the nobility, they were incapable of possessing vassals; and as little free labour was obtainable at the beginning of these manufacturing operations, some remedy to obviate the difficulty in obtaining workpeople became urgent. In order to encourage manufacture in the first instance, boors belonging to the Crown lands were handed over on the payment of the poll-tax, and provided that sufficient time should be given them to cultivate their own farms. No definite terms of agreement had been settled, and the privilege was abused. Rectifications took place in the time of Catherine II., following recommendations of a Commission appointed for the purpose, and manufactories were placed upon a more equitable basis. As manufacture increased, and with it, the aptness of the Russian to engage in various trades, he turned his attention from linen-weaving.

One account, amongst many, is given of Povlava by Tooke: "A parish belonging to Count Scheremetof, situated on the Oka, contains two thousand three hundred taxable boors, who are almost all smiths, and altogether compose a manufactory, though everyone works for himself. They make padlocks, shears, knives, sabres, wind-guns, musket-locks, files, plane-irons, and other tools, tongs, pincers, etc. The quantity they make, the goodness of the work, and the cheap rate at which they are sold, are truly worthy of admiration. Their goods go as far as Persia." The above was written in 1799, and exhibits but one of many forms of that industrial progress which was such a marked feature of Catherine's reign. The employment of men in industries such as indicated above caused the women to occupy themselves with the weaving of linen, as well as the spinning of yarns, and time not devoted to household matters was usually thus spent. But while the vassal boors were employed, at the pleasure

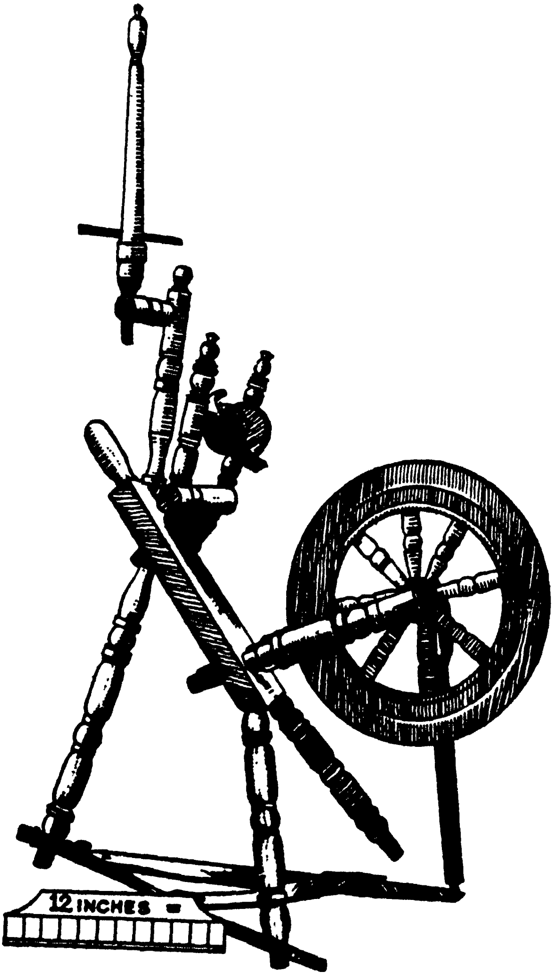


Fig. 58. Spinning-Wheel, Cardoff, Poland.

This wheel is of the Dutch type, and with the ordinary distaff.

This style of distaff is peculiar to Russia. The right-angled board at the bottom is weighted or steadied by the foot of the operator, who works standing. On one side of the distaff Russian hemp is bound, on the other side flax; either material is spun by twisting the spindle between the fingers. In the interior of Russia this mode of spinning coarse yarns is still greatly in vogue. Spinning of flax yarns by wheels is an enormous industry in Russia to-day, and not merely for domestic use. Very large quantities of linen goods are still produced by wheels and hand-looms commercially, and even exported to other countries; flax being one of the staple crops, is easily and cheaply procured. In the long winter months, when Russia is white with snow, labour, except indoors, is out of the question. Eighty per cent. of the inhabitants of Russia farm the land; other industries than that of agriculture are few in comparison to the size and population of the country. As the winter months must be spent in idleness or cottage labour, many markets in various articles are supplied by Russian cottage work, and the spinning and weaving of flax are not the least amongst the manifold home industries.

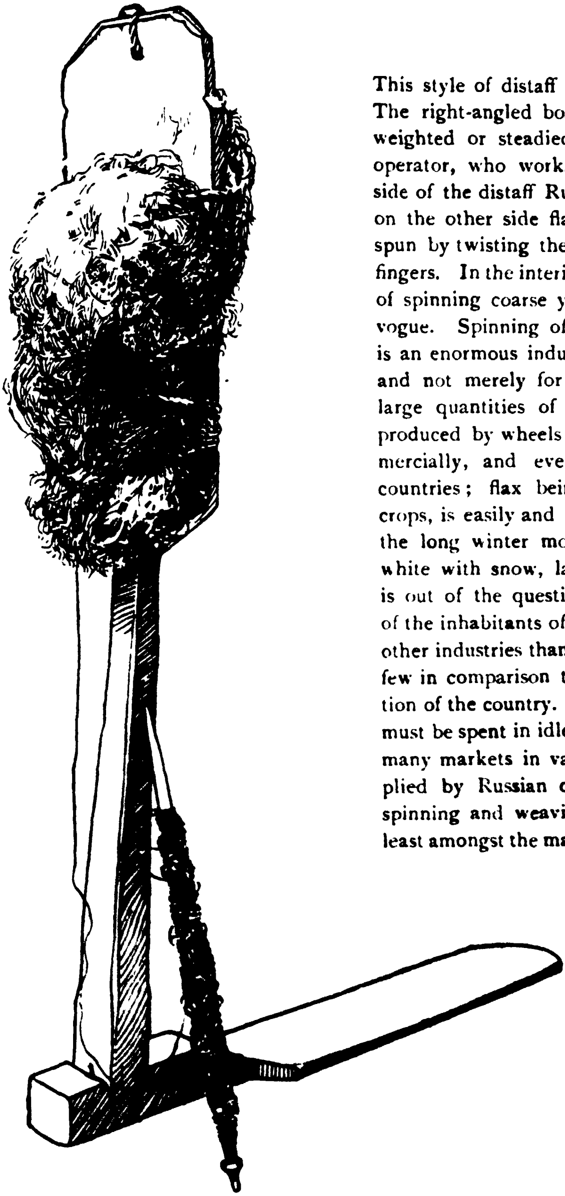


FIG. 59. STAND, DISTAFF, AND SPINDLE, RUSSIA

of their lord, at various handicraft trades, and supplying, in many cases, the demands of the manufactories, the free countrymen, who paid a tax for their farms, as well as a poll-tax, found it, in certain cases, to be more profitable to neglect the farm and devote themselves entirely to trade, reaping for themselves the full profit of their labours. In this latter class the true mercantile instincts of the country were developed. As trade advanced the peasants were permitted to devote their whole time to manufacture, if found beneficial, accounting to their feudal lord for work done. The extraordinary developments in manufacture during the reign of Catherine II. demanded all this readjustment of labour, and although so many people were in part or entirely taken from agricultural pursuits, the exportation of cereals continued to increase. This points to an increased activity, and probably to an acquirement of increased territory. During the reign of Catherine II., the two partitions of Poland took place. By the first, in 1772, Russia gained 42,000 square miles, and 1,800,000 inhabitants; by the second, in 1793, she added 96,000 square miles and 3,000,000 of a population. Poland was mainly agricultural, and the land, a light fertile loamy soil, was well adapted to the growth of cereals. In this Queen's reign, which lasted from 1761 to 1796, so much vigour was expended on the industries of Russia as to cause the exports from St. Petersburg to increase in value ten times. The following statements, taken from Customs House returns of exports and imports, relate to St. Petersburg alone, and show the rapid increase. The year of Catherine's accession, 1761, is not accounted for in this statement, but the increase to ten times the value is fairly accounted for. The rouble is a coin which always has been liable to rapid fluctuations in value. Tooke says that for ordinary purposes it may be estimated at four shillings during the greater part of the reign of Catherine II., but we find from actual tables its value was but 2/6 at the close of that reign.

Years.		Exports. Roubles.		Imports. Roubles.
1742	...	2,479,656	...	2,030,337
1749	...	3,184,322	...	2,942,242
1753	...	3,451,383	...	3,220,623
1754	...	3,577,939	...	3,279,097
1755	...	4,550,060	...	3,321,875

Years.	Exports. Roubles.	Imports. Roubles.
1757	4,598,120	3,193,375
1759	3,530,614	Not procured
1764	5,885,243	5,459,522
1775	8,299,584	6,892,833
1776	Not procured	5,256,521
1777	12,960,000	8,640,000
1779	Not procured	8,856,801
1780	10,941,128	8,656,379
1781	12,954,440	9,582,352
1782	11,467,347	12,204,482
1783	10,098,797	11,674,120
1784	12,941,513	12,172,345
1785	13,497,645	10,033,785
1786	13,360,011	11,775,577
1787	Not procured	15,564,553
1788	20,351,937	15,474,396
1789	21,735,663	15,371,105
1790	21,641,779	22,964,618
1791	20,040,697	25,140,631
1792	21,694,667	22,262,738
1793	23,757,954	14,580,569
1794	25,565,767	21,741,176
1795	31,767,952	23,019,175
1796	37,110,333	26,355,890
1797	32,450,911	19,366,059
1798	36,552,476	25,936,020
1799	38,169,925	19,290,779
1800	32,255,354	17,308,180
1801	31,110,996	24,082,250
1802	30,391,774	24,550,379
1803	31,893,082	21,838,962
1804	29,565,661	20,856,167

CHAPTER LIII.

Imports and Exports

The falling off of imports in 1793 was owing to the great prohibition of many articles of import in that year. The exports from St. Petersburg alone were the largest from any single port, but there were many other routes of exit, including ports and frontier places. The following is a comparison of the amount of exportation in 1768 with that of 1793, in roubles:—

1768.	1793.	Increase of Exports.
21,193,000	63,575,000	42,382,000

Added to the above statement, of which we only give the totals, are set out twenty-four items of export with their separate values attached. Amongst these were:—

Exported in	1768.	1793.	Increase.
Hemp	2,795,000	6,066,000	3,271,000
Flax	1,683,000	4,504,000	2,821,000
Sail-cloth	281,000	846,000	565,000

The following statement shows the rise in the price of flax and hemp, and goods made from these fibres, from 1767 to 1795. It may be observed that a pood is equal to 40 Russian pounds, or about 36 English pounds, a berkovetz to 10 Russian poods, an arshine equals 28 inches, a kopeck is the hundredth part of a rouble.

		1767.	1795.
Ravenduck per piece ...		5½ roubles.	12 to 14 roubles.
Flemish linen per piece ...		6 to 7½ ,,	18 ,, 20 ,,
Diaper per 1,000 arshines ...		70 ,,	160 ,,
Ticking per arshine ...		50 Kopecks.	1 rbl. 20 Kop.
Sail-cloth per piece ...		5¼ roubles.	22 to 26 roubles.
Flax per berkovetz,	best	21 to 22 ,,	53 to 58 ,,
,, ,,	2nd sort	18 ,,	43 to 54 ,,
,, ,,	heads	4½ to 6 ,,	6 to 8 ,,
Hemp per berkovetz,	best	15 to 15¼ ,,	41 ,,
,, ,,	2nd sort	14 to 30 ,,	— ,,
,, ,,	3rd sort	12 to 13 ,,	27 to 28 ,,
,, ,,	heads	4 to 4¼ ,,	14 to 15 ,,

Before giving details of exports we submit the following table, showing the value of the rouble at 1st January in various years :—

1788	37½ pence.
1789	32 ,,
1790	33 ,,
1791	29½ ,,
1792	29½ ,,
1793	28 ,,
1794	25¼ ,,
1795	28½ .,
1796	32¾ ,,
1797	31¾ ,,
1798	27½ ,,
1799	26 ,,
1800	28¾ ,,
1801	28½ ,,
1802	31¼ ,,
1803	32 ,,
1804	35¾ ,,
1805	30¾ ,,

AN ACCOUNT OF THE FLAX AND HEMP, AND GOODS MADE FROM THESE FIBRES, EXPORTED FROM ST. PETERSBURG TO GREAT BRITAIN FROM THE YEAR 1753 TO 1804 (INCLUSIVE).

It must be remarked that the number of British Ships to all parts, in which Produce was loaded, are given till the year 1791 ; from that year the number of British Ships which actually loaded to Great Britain and Ireland only, are stated in the following Account.

	Years	1753	1754	1755	1756	1757	1758	1759	1760	1761
	Ships	133	144	224	183	129	161	206	137	130
Hemp, Clean ..	Poods	545,661	736,476	1,202,302	1,117,018	736,639	839,111	1,352 166	803,182	549,797
Do. Outshot	do.	4,997	3,891	17 399	6,569	2,637	3,804	6,757	1,040	13,108
Do. ½-clean	do.	15,736	11,716	33,897	12,642	6,330	6,349	5,665	5,332	2,075
Flax, 12 heads	do.	47,026	32,808	58,242	58,979	63,906	98,559	166,995	63,604	92,348
Do. 9 & 6 do.	do.	18,027	15,573	29,009	21,833	18,520	28,820	28,818	19,827	21 701
Diaper, Broad..	Arshn	—	—	—	—	91,369	77,546	141,134	116,185	115,814
Do. Narrow	do.	554,319	107,177	194,662	152,555	252,994	208,901	268,839	260,175	309,033
Linen, Broad	do.	—	—	—	—	13,900	20,774	2 511	213,624	211,997
Do. Narrow	do.	3,106,448	2,122,773	4,797 253	3,683,672	1,503,334	793,047	283,925	2,049,092	2,774,284
Crash ..	do.	979,061	393 531	594 171	303,673	99,657	552,945	163,308	366,822	1,229,989
Drills ..	Pieces	48,155	49,496	50,191	51,361	44,319	37 426	40,562	44,992	74,029
Flems ..	do.	10,009	7,540	8,782	8,534	9,350	10,505	11,943	8,904	12,360
Ravenducks ..	do.	18,442	15,523	19,036	15,108	17,685	24,323	25,263	22,103	24 289
Sail-cloth ..	do.	3,093	4,472	9,135	5,423	7,202	11,583	7,069	11,242	13,361

AN ACCOUNT OF THE FLAX AND HEMP, AND GOODS MADE FROM THESE FIBRES, EXPORTED FROM ST. PETERSBURG TO GREAT BRITAIN FROM THE YEAR 1753 TO 1804 (INCLUSIVE).—*Continued.*

It must be remarked that the number of British Ships to all parts, in which Produce was loaded, are given till the year 1791, *from that year the number of British Ships which actually loaded to Great Britain and Ireland only, are stated in the following Account.*

	Years	1762	1763	1764	1765	1766	1767	1768	1769	1770
	Ships	152	141	186	237	150	190	223	304	284
Hemp, Clean ..	Poods	819,886	600,591	876,338	876,074	672,599	822,339	757,154	910,499	931,162
Do. Outshot	do	83,237	56,507	44,110	55,887	35,993	33,845	83,870	98,825	25,739
Do ½-clean	do	16,050	22,632	36,060	12,854	6,981	20,765	13,326	26,718	23,027
Flax, 12 heads	do	66,206	107,939	88,198	50,104	42,650	82,098	95,852	83,878	87,650
Do. 9 & 6 do.	do.	32,891	52,869	18,375	16,921	14,839	10,063	20,980	14,171	1,998
Diaper, Broad	Arshns	132,551	225,582	139,451	108,678	163,706	348,349	190,865	261,834	338,418
Do. Narrow	do	190,469	345,063	223,716	142,653	255,806	413,808	344,992	453,890	423,207
Linen, Broad	do.	49,516	204,902	111,581	248,269	180,566	95,247	51,904	256,340	59,620
Do. Narrow	do.	575,580	1,604,481	2,629,714	3,013,207	1,639,642	1,067,750	1 014,369	1,469,379	2,127,426
Crash ..	do.	237,689	172,089	1,401,178	1,575,897	492,267	349,997	535,006	790,476	1,349,070
Drills ..	Pieces	72,099	41,052	43,692	42,148	34,994	49,776	48,906	54,019	25,631
Flems ..	do.	13,888	19,127	24,644	23,555	18,612	19,071	16,767	11,469	15,749
Ravenducks ..	do.	30,236	38,332	30,074	35,870	40,225	39,501	51,267	39,049	41,067
Sail-cloth ..	do.	1,406	2,483	10,541	13,889	12,039	1,286	6,772	11,309	13,574

AN ACCOUNT OF THE FLAX AND HEMP, AND GOODS MADE FROM THESE FIBRES, EXPORTED FROM ST. PETERSBURG TO GREAT BRITAIN FROM THE YEAR 1753 TO 1804 (INCLUSIVE).—*Continued.*

It must be remarked that the number of British Ships to all parts, in which Produce was loaded, are given till the year 1791; from that year the number of British Ships which actually loaded to Great Britain and Ireland only, are stated in the following Account.

	Years	1771	1772	1773	1774	1775	1776	1777	1778	1779
	Ships	350	218	295	308	271	330	378	246	313
Hemp, Clean ..	Poods	1,384,081	589,453	1,023,713	1,132,767	798,435	767,472	1,104,299	939,693	1,380,605
Do. Outshot	do.	72,823	10,341	31,844	53,644	65,424	161,910	92,950	86,432	91,209
Do. ½-clean	do.	42,089	5,046	21,489	43,089	28,490	46,516	32,735	90,092	54,093
Flax, 12 heads	do.	113,488	97,473	39,935	112,190	147,224	135,232	208,135	156,137	150,419
Do. 9 & 6 do.	do.	16,761	12,147	5,214	7,068	16,387	21,084	27,544	18,391	8 083
Diaper, Broad	Arshns	206,533	79,967	145,711	217,051	128,988	295,058	152,834	190,824	146,289
Do. Narrow	do.	242,082	146,744	146,760	166,169	176,925	454,715	337,683	313,682	313,649
Linen, Broad	do.	21,000	79,940	66,331	89,833	157,085	98,535	82,155	—	45,042
Do. Narrow	do.	2,871,210	527,374	257,505	404,237	865,483	1,045,061	1,596,716	687,211	475,286
Crash ..	do.	1,150,247	615,714	575,572	526,153	753,727	1,177,580	1,143,440	558,771	744,487
Drills ..	Pieces	39,225	27,554	51,059	27,558	21,145	22,379	28,243	28,614	23,212
Flems ..	do.	16,496	26,607	21,366	26,976	24,895	17,293	23,483	27,741	20,927
Ravenducks ..	do.	47,951	37,910	55,302	46,080	49,444	53,837	56,494	58,629	69,274
Sail-cloth ..	do.	7,832	3,714	4,914	9,910	2,915	2,059	1,205	141	158

AN ACCOUNT OF THE FLAX AND HEMP, AND GOODS MADE FROM THESE FIBRES, EXPORTED FROM ST. PETERSBURG TO GREAT BRITAIN FROM THE YEAR 1753 TO 1804 (INCLUSIVE).—*Continued.*

It must be remarked that the number of British Ships to all parts, in which Produce was loaded, are given till the year 1791 ; *from that year the number of British Ships which actually loaded to Great Britain and Ireland only, are stated in the following Account.*

	Years	1780	1781	1782	1783	1784	1785	1786	1787	1788
	Ships	232	464	220	270	366	348	379	394	542
Hemp, Clean ..	Poods	810,982	1,310,967	1,163,570	590,557	1,209,231	1,038,791	638,000	900,763	1,481,264
Do. Outshot	do.	96,786	192,021	29,452	22,494	71,342	37,382	74,040	56,504	49,852
Do. ½-clean	do.	32,987	80,941	14,137	11,376	38,993	18,374	56,228	67,003	47,248
Flax, 12 heads	do.	145,280	189,193	155,648	248,100	168,063	378,606	299,150	324,417	443,441
Do. 9 & 6 do.	do.	8,482	13,739	9,874	10,698	1,695	9,049	26,296	34,886	19,787
Diaper, Broad	Arshns	261,475	201,172	182,237	244,010	175,467	198,074	171,028	219,132	111,049
Do. Narrow	do.	228,410	155,774	197,554	510,026	351,022	310,861	156,930	284,672	217,900
Linen Broad ..	do.	191,790	46,286	19,695	38,667	37,599	75,969	135,369	44,206	23,379
Do. Narrow	do.	786,989	302,564	259,405	834,713	592,137	529,472	491,040	876,987	841,288
Crash ..	do.	94	1,201,444	496,279	738,840	1,042,006	894,066	676,274	1,213,572	1,739,820
Drills ..	Pieces	21,833	13,961	12,790	14,901	15,280	20,890	15 343	12,430	14,203
Flems ..	do.	17,500	19,210	15,423	24,720	24,204	16,122	17,282	30,398	40,528
Ravenducks ..	do.	77,793	51,793	37,069	47,611	76,261	72,591	49,934	73,982	88,985
Sail-cloth ..	do.	428	272	724	1,084	2,800	2,556	2,095	2,216	2,942

AN ACCOUNT OF THE FLAX AND HEMP, AND GOODS MADE FROM THESE FIBRES, EXPORTED FROM ST. PETERSBURG TO GREAT BRITAIN FROM THE YEAR 1753 TO 1840 (INCLUSIVE).—*Continued.*

It must be remarked that the number of British Ships to all parts, in which Produce was loaded, are given till the year 1791; from that year the number of British Ships which actually loaded to Great Britain and Ireland only, are stated in the following Account.

	Years	1789	1790	1791	1792	1793	1794	1795	1796
	Ships	460	517	525	578	536	251	523	677
Hemp, Clean ..	Poods	1,306,594	1,499,476	865,731	1,582,252	1,290,867	1,492,533	1,050,680	1,340,063
Do. Outshot	do.	48,752	48,617	30,224	52,395	56,804	43,703	77,467	146,898
Do. ½-clean	do.	27,646	44,908	14,026	13,754	24,198	37,453	7,396	70,801
Flax, 12 heads	do.	263,709	370,367	523,682	344,917	389,018	488,607	413,494	388,795
Do. 9 & 6 do.	do.	7,931	5,125	1,729	5,638	7,603	8,594	22,526	31,863
Diaper, Broad	Arshns	113,092	207,227	112,376	265,810	106,418	150,628	128,485	175,849
Do. Narrow	do.	232,554	233,562	248,408	563,798	205,817	180,152	239,614	186,250
Linen, Broad ..	do	18,208	54,409	30,399	122,463	50,102	49,868	71,339	45,518
Do. Narrow	do.	640,114	227,338	69,934	384,124	309,115	421,492	329,773	289,154
Crash ..	do.	1,144,204	990,278	1,036,875	2,034,876	1,088,089	1,001,916	1,077,277	1,606,650
Drills ..	Pieces	17,193	10,223	10,645	11,790	12,902	12,670	11,164	3,235
Flems ..	do.	29,469	24,145	14,911	24,155	37,779	21,581	28,235	36,706
Ravenducks ..	do.	97,296	99,203	62,682	67,118	78,978	100,901	114,694	97,769
Sail-cloth ..	do.	4,933	851	2,238	673	42	—	211	170

AN ACCOUNT OF THE FLAX AND HEMP, AND GOODS MADE FROM THESE FIBRES, EXPORTED FROM ST. PETERSBURG TO GREAT BRITAIN FROM THE YEAR 1753 TO 1804 (INCLUSIVE).—*Continued.*

It must be remarked that the number of British Ships to all parts, in which Produce was loaded, are given till the year 1791 ; *from that year the number of British Ships which actually loaded to Great Britain and Ireland only, are stated in the following Account.*

	Years	1797	1798	1799	1800	1801	1802	1803	1804
	Ships	435	610	448	344	505	430	650	380
Hemp, Clean ..	Poods	1,145,392	1,491,614	1,267,245	694,128	1,195,208	743,860	1,313,912	1,092,055
Do. Outshot	do.	7,500	151,150	346,615	180,895	207,475	102,092	194,411	134,026
Do. ½-clean	do.	15,264	35,393	162,721	177,474	105,564	99,640	232,442	217,348
Flax, 12 heads	do.	291,970	468,018	341,927	231,966	283,133	180,094	176,471	268 323
Do. 9 & 6 do.	do.	12,173	14,552	85,090	27,282	50,720	15,183	7,527	18,034
Diaper, Broad	Arshns	165,376	253,558	280,437	86,575	209,398	175,300	75,976	50,209
Do. Narrow	do	345,644	445,978	309,372	77,604	270,216	153,241	140,675	155,476
Linen, Broad..	do.	99,008	107,552	133,416	23,570	63,611	194,714	106,471	1,838
Do. Narrow	do.	465,881	515,197	499,801	72,977	256,383	734,753	327,352	71,397
Crash ..	do.	1,848,303	2,110,134	1,592,453	—	1,161,286	1,663,279	1,443,294	967,900
Drills ..	Pieces	7,490	17,255	7,424	5,812	9,082	—	6,578	6,532
Flems ..	do.	26,828	35,837	61,589	24,140	21,021	28,881	20,009	21,339
Ravenducks ..	do	113,197	110,916	126,159	91,965	76,950	100,894	85,943	89,564
Sail-cloth ..	do.	—	164	3,654	60	338	—	160	95

TOTAL FLAX AND HEMP, AND THEIR MANUFACTURES, EXPORTED FROM ST. PETERSBURG, THE NUMBER OF BRITISH AND OTHER SHIPPING, FROM THE YEAR 1787 TO 1804.

	Years	1787	1788	1789	1790	1791	1792	1793	1794
	Ships	Brit. 394 For'n.358	542 402	460 377	517 415	525 513	606 355	542 335	533 417
	Total	752	944	837	932	1,038	961	877	950
Hemp, Clean ..	Poods	1,130,725	2,149,975	1,710,442	2,184,652	1,627,830	2,168,800	1,745,569	2,132,388
Do. Outshot	do.	159,526	239,665	181,829	157,235	109,697	138,151	97,749	117,083
Do. Half-clean	do.	143.928	208,599	166,975	142,390	88,563	122,862	47,117	111,003
Do. Codille ..	do.	38,531	66,091	35,707	44,238	24,582	9,322	8,238	6,127
Flax, 12 heads ..	do.	411,413	510.535	289,052	425,962	659,914	427,069	417,340	602,828
Do. 9 heads ..	do.	46,194	26,770	18,567	12,398	12,895	15,202	13,527	12,255
Do. 6 heads ..	do.	10,839	4,974	5,485	3,516	3,104	723	2,701	1,903
Do. Codille ...	do.	21,592	26,531	32,725	14,596	19,067	20,614	28,726	8,657
Cordage ..	do.	49,002	48.178	61,381	46,395	48,660	37,805	43,327	57,918
Diaper, Bd. & Nr.	Arshs.	633.869	519,087	405,940	483,973	442,038	956,362	415,686	438,705
Linen, do.	do.	948,540	931,805	670,297	388,825	108,926	546,627	402,267	511,011
Do. Bleached	do.	—	—	—	—	—	—	—	—
Crash ..	do.	1,267,099	1,808,242	1,220,684	1,051,413	1,163,722	2,132,509	1,167,441	1,079,547
Flems ..	Pieces	42,405	56,777	39,848	35,850	21,722	34,165	55,145	45,334
Ravenducks ..	do.	88,366	102,708	108,800	123,747	79,893	87,133	97,758	141,084
Sail-cloth ..	do.	56,111	39,319	42,046	44,438	38,382	42,860	47,705	67,005
Drillings ..	do.	38,907	32,105	29,927	29 205	20,655	28,478	25,176	23,400

TOTAL FLAX AND HEMP, AND THEIR MANUFACTURES, EXPORTED FROM ST. PETERSBURG, THE NUMBER OF BRITISH AND OTHER SHIPPING, FROM THE YEAR 1787 TO 1804.—*Continued.*

	Years	1796	1797	1798	1799	1801	1802	1803	1804
	Ships	Brit. 684 For'n 469	440 434	619 434	456 315	512 633	470 509	651 481	385 396
	Total	1,153	874	1,053	771	1,145	979	1,132	781
Hemp, Clean ..	Poods	1,686,780	1,596,607	2,052,774	1,602,863	1,485,752	1,475,531	1,868,632	1,463,601
Do. Outshot	do.	278,252	225,128	234,940	485,501	390,009	247,695	305,817	344,349
Do. Half-clean	do.	151,356	117,975	104,196	236,947	271,309	242,293	281,584	349,679
Do. Codille ..	do	36,176	36,766	50,487	384,707	21,496	20,246	32,709	22,890
Flax, 12 heads ..	do	440,160	336,365	485,099	349,037	300,153	208,915	194,237	321,268
Do. 9 heads ..	do.	35,769	17,083	20,744	94,970	54,804	16,699	11,170	24,427
Do. 6 heads ..	do.	3,385	717	2,008	2,073	815	589	417	341
Do. Codille ..	do	23,774	15,766	41,237	31,177	32,581	76,530	48,463	19,898
Cordage ..	do.	122,897	96,920	110,920	168,378	198,815	170,786	55,626	92,519
Diaper, Bd & Nr.	Arshs	597,393	682,023	431,633	725,930	682,472	487,254	542.381	343,822
Linen, do ..	do.	447,264	603,894	110,032	653,309	323,158	966,132	479.448	74,184
Do. Bleached	do	—	—	—	—	62,534	18,174	—	—
Crash ..	do.	1,695,455	1,958,634	2,235,159	1,799,150	1,271,511	1,852,984	1,589,274	1,024.203
Flems ..	Pieces	55,602	57,387	65,377	96,105	64,149	44,512	35,253	47,378
Ravenducks ..	do.	150,575	155,268	142,483	171,287	133,538	129,931	107,642	126.173
Sail-cloth ..	do.	59,778	44,858	73,707	53,038	66,680	43,398	60,041	53,315
Drillings ..	do.	12,033	18,866	24,698	11,694	18,080	458,377	7,851	9,709

ACCOUNT OF GOODS EXPORTED IN BRITISH

No. of Ships	For	Clean Hemp	Out-shot Hemp	Half-clean Hemp	Hemp Codilla	12-Head Flax	9-Head Flax	6-Head Flax
		Poods	Poods	Poods	Poods	Poods	Poods	Poods
189	London	376,426	79,957	127,411	—	42,258	9,667	—
	Woolwich	361,751	—	—	—	—	—	—
	Chatham	77,045	—	—	—	—	—	—
21	Hull	24,720	12,492	30,158	2,740	22,490	978	36
19	Liverpool	20,897	1,726	5,310	—	16,845	—	—
9	Newcastle	30,362	1,667	5,178	—	—	—	—
7	Portsmouth	51,717	—	—	—	—	—	—
6	Bristol	5,766	1,153	1,278	—	3,037	729	—
5	Whitehaven	7,364	1,629	2,299	—	17,405	—	—
4	Plymouth	42,413	—	—	—	—	—	—
4	Rochester	—	—	—	—	—	—	—
2	Wyrewater	—	664	1,566	—	5,292	—	—
2	Workington	7,153	1,578	—	—	—	—	—
1	Charlestown	1,871	998	—	—	—	—	—
1	Falmouth . ..	3 330	—	—	—	—	—	—
1	Penzance	1,265	973	—	—	—	—	—
1	Truro	2,879	—	—	—	—	—	—
1	Padstow	1,262	—	—	—	—	—	—
1	Swansea	2,473	—	—	—	—	—	—
1	Lynn	4,395	935	977	315	—	—	-
1	Southampton.. ..	3,164	1,360	896	—	378	—	—
1	Exeter	1,881	791	—	—	—	—	-
1	Stockton	—	—	—	—	—	—	—
1	Shields	3,705	3,106	—	—	—	—	—
1	Cowes	2,018	2,862	—	—	128	128	—
1	Whitby	—	560	1,308	—	3,605	—	—

SHIPS FROM ST. PETERSBURG, 1804.

Flax Codilla	Cordage	Ravenducks	Flems	Drilling	Sailcloth	Broad Diaper	Narrow Diaper	Broad Linen	Narrow Linen	Crash
Poods	Poods	Pieces	Pieces	Pieces	Pieces	Arshs.	Arshs.	Arshs.	Arshs.	Arshs.
2,265	466	78,823	19,527	6,181	—	46,489	152,045	970	71,350	880,445
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
2,945	—	6,675	93	240	10	—	555	—	—	74,385
2,897	—	—	13	—	—	—	—	—	—	—
—	—	100	40	10	—	847	—	868	—	—
—	—	1,160	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	1	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
4,624	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	120	—	—	—	—	—	—	—	—
—	—	—	2	—	—	—	—	—	—	—
—	—	50	6	—	—	—	—	—	47	—
—	—	22	—	—	—	—	—	—	—	—
—	—	—	—	—	30	—	—	—	—	500
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	400	—	100	—	—	—	—	—	6,320
—	—	—	—	—	—	—	—	—	—	—
—	—	—	-	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—

ACCOUNT OF GOODS EXPORTED IN BRITISH

No of Ships	For	Clean Hemp	Out-shot Hemp	Half-clean Hemp	Hemp Codilla	12 Head Flax	9 Head Flax	6 Head Flax
		Poods	Poods	Poods	Poods	Poods	Poods	Poods
25	Dundee	3,918	3,875	24,747	—	91,456	4,101	—
19	Leith	11,396	2,341	2,373	—	28,828	363	—
9	Grangemouth ..	13,175	1,080	472	764	1,072	163	—
5	Montrose	121	250	141	—	11,958	1,320	—
4	Arbroath	58	298	236	—	15,459	443	—
2	Cromarty	946	—	11,000	—	—	—	—
1	Greenock	3,150	—	—	—	315	—	—
1	Dunbar . ..	—	—	—	—	6	—	—
6	Dublin	5,073	6,364	608	2,171	5,956	—	—
3	Londonderry	2,075	3,495	748	575	194	—	—
3	Belfast	4,581	613	360	2,261	—	—	—
2	Newry	683	1,106	—	633	—	—	—
2	Waterford	3,141	1,264	282	442	1,578	106	—
1	Limerick	460	—	—	—	—	—	—
1	Cork	1,920	—	—	—	—	—	—
2	Lisbon	—	—	—	—	—	—	—
2	Jersey	5,623	275	—	—	63	—	—
1	Guernsey	1,878	614	—	—	—	—	—
1	Gibraltar	—	—	—	—	—	—	—
1	Tereriffe	—	—	—	—	2,129	623	—
1	Stettin	—	—	—	—	—	—	—
385	British	1,092,055	134,026	217,348	9,901	270452	18,621	36
65	American	187,495	87,694	3,340	652	3,244	15	—
331	Other Nations ..	184,051	122,629	128,991	12,337	47,572	5,791	305
781	Ships *Total* ..	1,463,601	344,349	349,679	22,890	321268	24,427	341

SHIPS FROM ST. PETERSBURG, 1804.—*Continued.*

Flax Cod-illa	Cor-dage	Raven-ducks	Flems	Dril-ling	Sail-cloth	Broad Diaper	Narrow Diaper	Broad Linen	Nar-row Linen	Crash
Poods	Poods	Pieces	Pieces	Pieces	Pieces	Arshs.	Arshs.	Arshs.	Arshs.	Arshs.
—	—	560	340	—	—	—	—	—	—	—
137	—	514	263	—	—	2,873	1,450	—	—	5,250
—	—	710	680	—	—	—	1,426	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
315	347	—	—	—	—	—	—	—	—	—
45	—	—	—	—	—	—	—	—	—	—
—	—	—	2	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
187	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	28,356	200	—	—	200	—	—	—	—	—
—	—	80	30	—	30	—	—	—	—	—
—	8,002	350	343	—	25	—	—	—	—	1,000
—	688	100	490	—	120	—	—	—	—	—
—	999	—	48	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
13,415	38,885	89,864	21,877	6,532	415	50,209	155,476	1,838	71,397	967,900
—	13,618	23,044	19,648	1,090	32,190	83,686	10,546	949	—	3,298
6,483	40,016	13,265	5,853	2,087	20,710	43,905	—	—	—	53,005
19,898	92,519	126,173	47,378	9,709	53,315	177,800	166,022	2,787	71,397	1,024,203

EXPORTED IN AMERICAN SHIPS.

No of shp	For	Clean Hemp	Out-shot Hemp	Half-clean Hemp	Hemp Codilla	12-Head Flax	9-Hd. Flx.	Cor-dage	Raven ducks	Flems	Drill-ings	Sail-cloth	Broad Diaper	Nar'w. Diaper	Bd. Lin-en	Crash
		Poods	Poods	Poods	Poods	Poods	Pds	Poods	Pieces	Pieces	Pieces	Pieces	Arshs.	Arshs.	Ars.	Ars.
14	Boston ..	47,555	13,991	—	—	31	15	3,870	3,208	1,354	—	7,626	16,483	—	—	758
14	Salem ..	34,536	13,772	653	—	26	—	5,066	4,575	3,739	—	6,026	3,000	—	—	—
11	New York ..	41,822	27,034	437	652	—	—	287	4,286	3,702	—	6,117	21,855	6,673	—	1500
4	Baltimore ..	19,804	1,870	—	—	—	—	666	5,760	5,202	60	3,475	4,642	1,373	949	1040
4	Newburyport	—	12,800	507	—	34	—	111	926	504	—	2,614	—	—	—	—
4	Providence ..	12,889	3,099	712	—	—	—	—	960	370	—	1,150	5,750	—	—	—
3	Marblehead	4,909	—	—	—	—		1,207	290	122	—	976	—	—	—	—
3	Philadelphia	7,584	7,303	—	—	—	—	—	1,236	4,053	1,000	1,250	30,956	2,500	—	—
2	Gloucester ..	5,596	242	—	—	—		105	225	—	—	472	1,000	—	—	—
1	Portland ..	3,441	3,659	—	—	—		213	700	—	—	662	—	—	—	—
1	Plymouth ..	2,417	—	—	—	—		—	238	30	—	630	—	—	—	—
1	Newbedford	3,715	3,660	—	—	—		—	490	430	30	1,092	—	—	—	—
1	St. Michaels	—	—	—	—	3,153		—	—	2	—	—	—	—	—	—
1	Rhode Island	2,652	—	—	—	—		—	150	50	—	100	—	—	—	—
1	Lisbon ..	575	255	1,031	—	—	—	2,093	—	—	—	—	—	—	—	—
65	Ships. *Total*	187495	87,694	3,340	652	3,244	15	13,618	23,044	19,648	1,090	32,190	83,686	10,546	949	3298

STATE OF THE EXPORTS AT ST. PETERSBURG FROM 1789, TO THE PRINCIPAL PORTS OF GREAT BRITAIN, AND IN TOTO TO IRELAND, TILL 1804.

ENGLAND.

What Port	Years	No. of Ships	Clean Hemp	Out-shot	Half-clean	12-head Flax	9 & 6-hd. Flax	Flax Codilla	Flems	Rvdks.
			Poods	Poods	Poods	Poods	Poods	Poods	Pieces	Pieces
London . .	1789	166	726,412	25,465	17,015	47,886	2,065	317	26,727	87,700
Do. . .	1790	206	907,666	25,414	23,250	74,597	—	—	22,117	97,665
Do. . .	1791	145	383,033	9,364	8,043	129,973	924	3,160	11,838	55,962
Do. . .	1792	156	738,685	29,727	11,722	108,635	3,517	4,289	19,600	57,651
Do. . .	1793	198	721,349	37,097	21,468	105,321	3,707	16,741	32,879	70,846
Do. . .	1794	138	683,727	23,961	23,352	27,847	3,667	3,529	17,692	89,435
Do. . .	1795	173	536,233	26,290	4,267	71,807	8,921	—	26,132	105,671
Do. . .	1796	223	701,047	73,420	28,860	62,649	8,730	3,166	31,527	84,034
Do. . .	1797	205	746,566	44,729	11,539	77,129	5,804	9,793	24,054	102,673
Do. . .	1798	242	1011263	108,490	26,689	107,893	4,555	20,629	31,690	97,955
Do . .	1799	179	633,927	221,054	119,057	25,947	16,108	10,730	50,020	97,006
Do. . .	1800	154	421,600	98,218	133,739	44,320	6,441	2,968	22,005	86,488
Do. . .	1801	238	819,844	131,740	68,627	105,150	23,934	8,470	16,956	69,338
Do. . .	1802	181	342,454	49,685	29,354	60,440	3,897	11,170	22,851	86,313
Do. . .	1803	294	681,932	114,389	145,377	66,452	2,010	12,225	18,354	79,731
Do. . .	1804	189	815,222	79,957	127,411	42,258	9,667	2,265	19,527	78,823

State of the Exports at St. Petersburg from 1789, to the Principal Ports of Great Britain, and in toto to Ireland, till 1804 (*continued*).

ENGLAND.

What Port	Years	No. of Ships	Clean Hemp	Out-shot	Half-clean	12-head Flax	9 & 6-hd. Flax	Flax Codilla	Flems	Rvdks.
			Poods	Poods	Poods	Poods	Poods	Poods	Pieces	Pieces
Hull ..	1789	74	109,357	7,187	2,801	33,214	1,837	3,577	244	2,864
Do. ..	1790	72	89,307	8,613	4,987	65,167	—	323	90	2,716
Do. ..	1791	109	66,149	1,579	—	65,263	292	1,922	46	1,800
Do. ..	1792	110	136,670	4,227	739	30,858	529	2,462	73	2,869
Do. ..	1793	123	72,309	8,739	2,730	70,323	2,504	731	2,736	4,355
Do. ..	1794	75	88,790	10,073	11,034	55,396	1,670	—	177	5,439
Do. ..	1795	101	53,638	26,725	2,826	81,001	8,906	138	109	5,135
Do. ..	1796	136	64,567	42,876	33,795	41,243	11,505	—	433	7,235
Do. ..	1797	75	36,648	14,673	2,410	47,712	4,738	319	345	6,572
Do. ..	1798	110	74,329	18,073	6,659	48,377	5,024	12,732	718	6,759
Do. ..	1799	33	48,065	31,211	33,686	32,702	15,510	5,772	2,172	16,631
Do. ..	1800	52	9,865	15,510	15,639	36,275	3,793	132	228	3,960
Do. ..	1801	93	30,429	33,615	16,891	58,037	11,361	10,282	312	6,202
Do. ..	1802	59	61,095	20,306	16,432	41,939	1,710	17,348	865	10,082
Do. ..	1803	110	67,957	31,561	35,895	27,659	718	10,384	156	4,000
Do. ..	1804	21	24,720	12,492	30,158	22,490	1,014	2,945	92	6,675

STATE OF THE EXPORTS AT ST. PETERSBURG FROM 1789, TO THE PRINCIPAL PORTS OF GREAT BRITAIN, AND IN TOTO TO IRELAND, TILL 1804 (*continued*).

ENGLAND.

What Port	Years	No. of Ships	Clean Hemp	Out-shot	Half-clean	12-head Flax	9 & 6-hd Flax	Flax Codilla	Flems	Rvdks.
			Poods	Poods	Poods	Poods	Poods	Poods	Pieces	Pieces
Liverpool ..	1789	20	54,122	415	—	14,116	1,100	832	2	11
Do. ..	1790	44	58,129	2,777	—	34,163	2,939	439	—	20
Do. ..	1791	68	60,724	—	—	57,478	—	—	100	150
Do. ..	1792	72	115,843	315	—	43,408	541	—	23	360
Do. ..	1793	28	17,394	—	—	33,210	—	—	3	—
Do. ..	1794	28	28,026	238	211	37,786	490	—	12	—
Do. ..	1795	38	14,524	1,089	—	40,826	1,688	—	44	120
Do. ..	1796	52	34,891	7,179	3,772	30,300	1,435	—	124	458
Do. ..	1797	17	16,602	412	—	35,750	—	—	27	840
Do. ..	1798	43	68,429	4,178	—	40,001	729	639	814	1,990
Do. ..	1799	30	52,602	16,392	3,424	20,592	4,084	—	2,677	3,877
Do. ..	1800	9	4,760	6,178	6,955	5,718	819	—	150	—
Do. ..	1801	26	6,697	5,536	4,833	4,504	1,633	686	195	80
Do. ..	1802	29	40,749	5,718	2,062	10,899	976	13,333	344	30
Do. ..	1803	34	44,696	5,184	3,333	8,281	—	2,207	160	90
Do. ..	1804	19	20,897	1,726	5,310	16,845	—	2,897	13	—

STATE OF THE EXPORTS AT ST. PETERSBURG FROM 1789, TO THE PRINCIPAL PORTS OF GREAT BRITAIN, AND IN TOTO TO IRELAND, TILL 1804 (*continued*).

ENGLAND.

What Port	Years	No. of Ships	Clean Hemp	Out-shot	Half-clean	12-head Flax	9 & 6-hd. Flax	Flax Codilla	Flems	Rvdks.
			Poods	Poods	Poods	Poods	Poods	Poods	Pieces	Pieces
Newcastle ..	1789	6	46,871	—	—	3,253	—	—	6	160
Do. ..	1790	11	70,494	—	—	3,880	—	—	—	480
Do. ..	1791	8	38.125	—	—	6,286	—	—	—	440
Do. ..	1792	17	85,495	—	—	1,331	—	—	15	240
Do. ..	1793	14	60,864	—	—	7,166	—	—	60	393
Do. ..	1794	12	56,240	339	464	8,271	—	—	113	390
Do. ..	1795	15	66,226	6,334	—	3,474	—	350	4	600
Do. ..	1796	13	49,652	1,001	—	1,851	—	—	60	200
Do. ..	1797	7	24,785	715	—	—	—	—	9	678
Do. ..	1798	16	71,632	—	—	1,660	—	—	118	466
Do. ..	1799	15	77,753	13,267	887	3,054	1,788	101	250	1,184
Do. ..	1800	6	25,261	5,201	—	—	—	—	8	—
Do. ..	1801	9	40,471	5,203	1,250	—	—	—	50	300
Do. ..	1802	13	55,195	605	—	631	—	—	80	—
Do. ..	1803	10	42,509	1,766	—	314	—	—	—	270
Do. ..	1804	9	30,362	1,667	5,178	—	—	—	40	160

STATE OF THE EXPORTS AT ST. PETERSBURG FROM 1789, TO THE PRINCIPAL PORTS OF GREAT BRITAIN, AND IN TOTO TO IRELAND, TILL 1804 (*continued*).

ENGLAND.

What Port	Years	No. of Ships	Clean Hemp	Out-shot	Half-clean	12-head Flax	9 & 6-hd. Flax	Flax Codilla	Flems	Rvdks.
			Poods	Poods	Poods	Poods	Poods	Poods	Pieces	Pieces
Bristol ..	1789	8	55,323	3,166	—	2,143	—	1,205	40	100
Do. ..	1790	9	59,438	4,668	—	10,089	—	—	—	1,202
Do. ..	1791	16	52,307	4,470	—	14,324	-	—	40	488
Do. ..	1792	17	62,117	6,275	650	14,664	—	—	96	300
Do. ..	1793	7	37,607	2,506	—	19,021	589	—	—	—
Do. ..	1794	7	22,006	—	—	2,206	—	—	—	—
Do. ..	1795	8	20,950	3,535	—	12,585	40	—	—	—
Do. ..	1796	10	37,358	3,921	1,827	6,477	147	—	—	—
Do. ..	1797	12	21,290	1,260	—	4,806	—	—	4	320
Do. ..	1798	7	18,952	5,136	265	7,268	—	—	3	—
Do. ..	1799	7	22,941	6,260	—	6,124	1,826	—	103	—
Do. ..	1800	3	2,539	3,172	634	632	897	—	—	420
Do. ..	1801	5	10,346	2,301	688	3,322	1,034	—	7	—
Do. ..	1802	8	18,511	1,893	641	1,352	—	—	4	—
Do. ..	1803	10	20,632	5,384	86	3,442	—	—	5	2
Do. ..	1804	6	5,766	1,153	1,278	3,337	729	—	—	—

State of the Exports at St. Petersburg from 1789, to the Principal Ports of Great Britain, and in toto to Ireland, till 1804 (*continued*).

SCOTLAND.

What Port	Years	No. of Ships	Clean Hemp	Out-shot	Half-clean	12-head Flax	9 & 6-hd. Flax	Flax Codilla	Flems	Rvdks.
			Poods	Poods	Poods	Poods	Poods	Poods	Pieces	Pieces
Leith .	1789	19	27,923	—	2,049	10,347	—	—	569	233
Do. . .	1790	35	49,405	—	—	25,173	—	—	312	376
Do. . .	1791	20	44,821	156	—	25,543	120	—	345	300
Do. . .	1792	24	45,162	—	—	22,200	768	—	1,257	1,684
Do. . .	1793	22	24,778	—	—	21,118	36	—	1,342	1,561
Do. . .	1794	22	44,433	—	—	35,969	1,421	500	—	—
Do. .	1795	28	25,362	1,581	—	35,729	1,609	—	860	601
Do. . .	1796	34	34,801	1,044	201	37,769	424	—	1,081	1,342
Do. . .	1797	24	15,936	—	—	12,337	1,126	1,481	414	745
Do. . .	1798	31	41,505	187	171	37,961	5,416	140	998	1,086
Do. . .	1799	28	39,472	16,518	1,417	32,199	601	—	2,970	2,765
Do. . .	1800	14	8,199	3,073	868	18,099	—	—	294	322
Do. . .	1801	22	28,981	3,211	1,148	26,348	1,332	1,670	720	132
Do. .	1802	21	36,489	1,416	820	15,650	1,269	1,585	1,026	703
Do. . .	1803	26	38,645	1,216	854	10,838	1,057	137	92	332
Do. . .	1804	10	11,396	2,341	2,373	28,828	393	—	203	514

STATE OF THE EXPORTS AT ST. PETERSBURG FROM 1789, TO THE PRINCIPAL PORTS OF GREAT BRITAIN, AND IN TOTO TO IRELAND, TILL 1804 (*continued*).

SCOTLAND.

What Port	Years	No. of Ships	Clean Hemp	Out-shot	Half-clean	12-head Flax	9 & 6-hd. Flax	Flax Codilla	Flems	Rvdks.
			Poods	Poods	Poods	Poods	Poods	Poods	Pieces	Pieces
Dundee ..	1789	11	4,462	281	—	50,884	—	122	—	—
Do. ..	1790	19	7,039	—	—	82,486	264	—	56	10
Do. ..	1791	18	6,753	632	—	86,031	—	—	30	23
Do. ..	1792	10	9,415	—	—	32,258	—	—	—	—
Do. .	1793	15	6,080	—	—	60,578	21	—	32	10
Do. ..	1794	40	10,607	2,272	—	130,103	2,272	—	50	30
Do. ..	1795	17	1,407	463	—	62,849	675	—	30	100
Do. ..	1796	25	4,575	—	622	94,633	1,758	—	2	—
Do. ..	1797	11	2,693	947	41	49,878	817	—	100	200
Do. ..	1798	28	8,580	742	452	112,118	362	648	—	—
Do. ..	1799	34	6,864	3,593	1,079	111,978	21,205	—	272	430
Do. ..	1800	23	1,563	2,981	5,513	60,354	7,190	2,614	—	—
Do. ..	1801	11	—	1,246	3,852	31,842	8,897	12,899	—	—
Do. ..	1802	10	12,894	2,686	32,798	27,644	4,071	7,995	300	—
Do ..	1803	22	18,800	2,049	28,932	35,232	3,525	—	305	108
Do. ..	1804	25	3,918	3,875	24,747	91,456	4,101	—	340	560

STATE OF THE EXPORTS AT ST. PETERSBURG FROM 1789, TO THE PRINCIPAL PORTS OF GREAT BRITAIN, AND IN TOTO TO IRELAND, TILL 1804 (*continued*).

SCOTLAND.

What Port	Years	No. of Ships	Clean Hemp	Out-shot	Half-clean	12-head Flax	9 & 6-hd. Flax	Flax Codilla	Flems	Rvdks.
			Poods	Poods	Poods	Poods	Poods	Poods	Pieces	Pieces
Grangemouth	1789	2	—	—	—	—	—	—	50	100
Do. ..	1790	6	2,002	—	450	958	—	—	216	224
Do. ..	1791	7	3,175	—	—	—	—	—	—	105
Do. ..	1792	12	6,184	—	—	8	—	—	1,034	383
Do. ..	1793	6	2,527	—	—	1,966	—	—	170	60
Do. ..	1794	7	4,145	—	1,092	—	—	—	997	775
Do. ..	1795	14	6,310	549	—	4,959	300	—	991	906
Do. ..	1796	21	10,984	2,227	577	1,810	—	—	2,526	2,301
Do. ..	1797	15	11,934	1,219	—	3,976	—	—	1,603	761
Do. ..	1798	23	18,031	1,232	479	8,566	33	—	1,247	1,091
Do ..	1799	10	23,124	5,304	1,254	13,702	1,461	—	2,298	1,677
Do. ..	1800	9	8,013	1,471	206	5,204	154	—	1,179	305
Do. ..	1801	17	4,263	2,754	618	3,285	311	—	2,722	550
Do. ..	1802	13	10,282	1,873	821	—	—	—	3,224	1,634
Do. ..	1803	19	21,621	706	545	714	23	—	816	650
Do. ..	1804	9	13,175	1,089	472	1,072	163	—	680	710

STATE OF THE EXPORTS AT ST. PETERSBURG FROM 1789, TO THE PRINCIPAL PORTS OF GREAT BRITAIN, AND IN TOTO TO IRELAND, TILL 1804 (*continued*).

IRELAND.

What Port	Years	No. of Ships	Clean Hemp	Out-shot	Half-clean	12-head Flax	9 & 6-hd. Flax	Flax Codilla	Flems	Rvdks.
			Poods	Poods	Poods	Poods	Poods	Poods	Pieces	Pieces
Dublin **Newry** **Belfast** **Derry** **Sligo** **Limerick** **Cork** **Waterford**	1789	27	48,977	331	—	18,299	—	—	—	—
	1790	30	53,217	—	—	16,500	—	—	—	—
	1791	37	63,400	2,411	2,973	30,318	—	—	—	—
	1792	39	77,790	—	643	28,364	768	—	16	1
	1793	23	45,381	—	—	19,088	18	—	—	—
	1794	52	93,066	53	87	44,643	—	—	—	—
	1795	28	42,997	1,119	—	31,706	—	—	—	20
	1796	39	64,218	4,608	2,965	39,017	390	216	—	—
	1797	4	9,479	2,210	597	3,565	—	138	—	—
	1798	19	34,918	5,346	630	8,841	88	—	2	2
	1799	24	46,283	—	—	—	—	—	—	—
	1800	19	34,101	13,829	2,129	20,074	1,165	76	10	—
	1801	8	5,691	5,184	1,682	9,299	244	—	—	—
	1802	24	35,771	8,779	8,036	11,319	—	120	24	—
	1803	32	68,311	15,592	5,273	4,777	—	177	6	—
	1804	18	17,933	12,842	1,998	7,728	106	547	2	—

PRINCIPAL EXPORTS FROM ST. PETERSBURG TO AMERICA ONLY, FROM ITS INDEPENDENCE TO 1804.

Denomination of Goods		1783	1784	1785	1786	1787	1788	1789	1790	1791	1792	1793
Ships		2	1	7	10	11	10	17	22	20	24	30
Hemp, Clean	Pds.	7,784	8,113	21,332	52,981	44,190	41,063	60,860	137,232	78,935	112,430	160,276
Do. Outshot	do.	159	668	—	2,964	9,742	6,520	—	1,861	—	—	—
Do. ½-clean	do.	—	—	—	—	6,024	775	—	1,008	—	—	—
Flax, 12 h'd.	do.	—	1,044	8	167	410	103	—	1,071	—	2,909	634
Ravenducks	Pcs.	570	—	312	1,464	2,769	1,752	1,635	2,463	3,354	5,993	5,062
Flems	do.	437	—	2,709	601	1,688	1,877	565	856	533	2,711	5,844
Sail-cloth	do.	500	370	4,074	6,850	9,164	7,771	11,667	9,804	5,184	15,577	13,391
Drillings	do.	4,248	—	12,510	90	372	4,884	150	5	—	260	760
Broad Diap'r	Ars.	26,110	19,597	2,080	7,112	—	2,755	1,876	2,468	16,376	35,104	5,398
Narrow do.	do.	1,194	—	—	1,000	—	7,580	90	1,429	800	4,077	7,889
Broad Linen	do.	2,953	481	—	—	—		250	1,024	—	—	—
Narrow do.	do.	13,073	—	—	1,600	—	880	—	211	—	1,300	—
Printed do.	do.	—	—	—	1,224	—	174	2,000	1,340	—	90	200
Crash	do.	30,680	4,645	—	—	—	—	—	355	—	—	3,020
Ticken	Fcs.	—	—	—	—	—	—	—	—	—	—	900
Table-cloths	do.	—	—	—	—	—	—	—	—	—	—	—
Napkins	do.	—	—	—	—	—	108	—	—	—	—	—

PRINCIPAL EXPORTS FROM ST. PETERSBURG TO AMERICA ONLY, FROM ITS INDEPENDENCE TO 1804.

(*Continued*).

Denomination of Goods		1794	1795	1796	1797	1798	1799	1800	1801	1802	1803	1804
Ships		43	42	59	26	39	62	23	61	65	84	65
Hemp, Clean	Pds.	249,625	137,633	182,487	90,424	172,244	241,826	16,314	169,995	205,386	315,452	187,495
Do. Outshot	do.	—	—	1,870	—	—	15,181	18,862	51,709	33,791	45,976	87,694
Do. ½-clean	do.	—	—	3,808	—	—	—	—	1,702	2 466	639	3,340
Flax, 12 h'd.	do.	4,448	842	1,660	—	206	—	—	889	—	303	3,244
Ravenducks	Pcs.	14,143	10,768	10,225	7,853	14,238	19,952	9,013	33,820	10,365	10,651	23,044
Flems	do.	11,455	6,682	5,743	10,785	18,702	20,979	14,774	34,224	7,717	13,161	19,648
Sail-cloth	do	25,787	11,828	9,328	7,926	35,340	22,057	6,624	32,997	10,977	32,653	32,190
Drillings	do.	606	780	118	120	100	60	30	860	2,150	1,051	1,090
Broad Diap'r	Ars.	9,920	68,139	78,714	20,777	26,539	88,080	53,416	98,665	92,669	239,365	83,686
Narrow do.	do.	1,325	82,290	45,805	23,683	3,752	14,093	22,668	70,178	39,824	79,278	10,546
Broad Linen	do.	—	1,200	—	—	686	6,443	4,508	2,064	11,300	28,395	949
Narrow do.	do	100	1,110	100	—	194	5,499	10,495	1,100	25,265	7,400	—
Printed do	do.	120	450	387	—	400	1,200	—	—	—	113,600	—
Crash	do.	5,525	71,500	27,000	7,100	12,055	35,912	—	51,000	146,350	—	3,298
Ticken	Pcs.	—	4,735	1,202	38	—	136	43	37	—	—	—
Table-cloths	do.	—	—	—	60	121	282	14	157	95	13	—
Napkins	do.	—	—	—	261	227	126	—	591	96	26	—

STATE OF THE PRINCIPAL ARTICLES OF EXPORTATION FROM

No. of Ships	For	Hemp			Flax			Cordage
		1st Sort	2nd	3rd	12-head	9-head	6-hd	
		Poods	Poods	Poods	Poods	Poods	Pds	Poods
68	Prussia ..	7,397	7,666	5,293	604	17	—	—
54	Lübeck ..	15,948	3,798	78,635	146	1,875	—	719
43	Denmark ..	15,813	47,654	5,872	1,909	1,246	—	20,845
39	Sweden ..	17,201	26,021	3,324	1,888	925	151	465
29	France ..	55,495	7,691	10,009	—	22	—	—
26	Amsterdam ..	2,270	2,651	2,328	—	210	—	—
24	Spain ..	13,775	15,853	13,283	4,521	17,842	53	496
22	Portugal ..	9,930	6,122	2,692	985	20,844	101	14,312
14	Rostock ..	784	3,065	6,823	2,284	—	—	—
4	Italy ..	2	—	—	—	4,591	—	—
2	Sound ..	—	—	—	—	—	—	2,748
2	Bremen ..	326	—	732	—	—	—	—
1	Philadelphia	5,110	2,108	—	—	—	—	—
3	Other Ports and Elsinore	—	—	—	—	—	—	103
331	Several Nations	144,051	122,629	128,991	47,572	5,791	305	39,688
385	English Ships	1,093,055	134,026	217,348	270,452	18,621	36	38,885
65	American ..	187,495	87,694	3,340	3,244	15	—	13,618
781	*Total* ..	1,424,601	344,349	349,679	321,268	24,427	341	92,191

ST. PETERSBURG, IN THE YEAR 1804, TO DIFFERENT COUNTRIES

Sail-cloth	Raven-ducks	Flems	Calam-anco	Table cloths	Nap-kins	Ditto cloth	White ditto	Printed ditto	Sack cloths
Pieces	Pieces	Pieces	Pieces	Pcs.	Pieces	Arshns.	Arshns.	Arshns.	Arshns.
2,917	996	5	1,202	—	—	—	—	—	200
2,189	1,841	2,323	30	—	—	—	200	—	2,525
8,996	5.941	1 827	28	—	—	8,080	10,475	1,200	39.875
778	301	96	—	—	—	330	—	—	200
130	28	16	—	—	—	375	—	—	—
205	100	1	201	13	230	19,710	250	—	200
1,414	516	467	—	8	108	670	300	50	350
3.386	3.012	693	606	36	282	565	1,106	11,617	9,180
146	20	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
339	5	—	20	—	—	—	—	—	—
200	500	420	—	—	—	14.175	—	—	475
10	5	5	—	—	—	—	—	—	—
20,710	13.265	5.853	2,087	57	620	43.905	12.331	12,867	53.005
415	89,864	21,877	6,532	15	—	205,685	73.235	—	967.900
32,190	23,044	19,648	1,090	—	—	94.232	949	—	3.298
53.315	126,173	47.378	9,709	72	620	343.822	86.515	12,867	1,024,203

STATE OF THE EXPORTS FROM ST. PETERSBURG TO FRANCE BY THE CUSTOM HOUSE BOOKS AT ST. PETERSBURG, FROM 1772 TO 1803.

Articles	Years	1772	1773	1782	1783	1784	1785	1786	1787
Ships ..		46	80	81	15	30	39	26	19
Hemp, Clean ..	Poods	147,994	211,208	285,891	24,789	57,593	89,494	90,695	60,697
Do. Outshot	do.	24,881	86,411	130,665	29,225	38,867	73,931	15,625	5,323
Do ½-clean	do.	19,652	56,256	103,865	8,829	42,323	28,621	5,702	17,003
Flax, 12 head ..	do.	677	2,664	641	1,114	297	14,100	1,911	111
Do. 9 & 6 head	do	1,014	1,607	376	—	—	69	7,116	60
Flems ..	Pieces	—	68	—	10	6	11	—	150
Ravenducks ..	do.	4,150	147	617	28	170	120	160	203
Sail-cloth ..	do.	1,495	1,890	2,149	1,143	2,184	1,184	1,820	1,364
Hemp Codille ..	Poods	4,197	3,172	13,115	3,003	5,877	—	1,119	—
Cordage ..	do	1,111	717	3,723	937	4,691	2,262	343	1,186

Articles	Years	1788	1789	1790	1791	1792	1793	1802	1803
Ships ..		66	61	55	70	37	All French Manufactures and Produce prohibited and all intercourse with that country by Ukase, March, 1793.	1	13
Hemp, Clean ..	Poods	252,643	81,257	164,337	261,269	114,208		—	48,288
Do Outshot	do.	75,268	84,583	26,040	32,112	31,694		—	2,032
Do. ½-clean	do	70,076	87,196	29,727	42,212	40,569		—	—
Flax 12 head ..	do	38	499	44	75	130		—	—
Do. 9 & 6 head	do.	—	1,749	—	—	35		—	—
Flems ..	Pieces	1,394	608	7	642	—		—	—
Ravenducks ..	do.	351	316	644	1 523	108		—	—
Sail-cloth ..	do.	1,838	2,424	6,191	3,500	31		—	—
Hemp Codille ..	Poods	3,172	—	12,945	—	2,776		—	—
Cordage ..	do.	2,158	4,009	885	10,310	900		—	—

Besides being an export city, St. Petersburg was a market for internal distribution, and some idea may be formed of the importance of the trade in raw materials and linens for home consumption by giving the total quantities of such goods brought annually to St. Petersburg at the close of the eighteenth century:—

HEMP	4,750,000	poods.
FLAX	595,000	,,

LINEN MANUFACTURE.

Linen, broad, of all sorts	700,000	arshines.
Linen, narrow, of all sorts	1,500,000	,,
Diaper	1,700,000	,,
Diaper, narrow	1,800,000	,,
Huckaback	250,000	,,
Printed Linens of all kinds	200,000	,,
Fine-bleached in rolls	125,000	,,
	6,275,000	

Ravenducks, 50 Arshines long	250,000	pieces.
Flems, 50 to 57 ,, ,,	200,000	,,
Drills, 50 ,, ,,	250,000	,,
Tickens of all sorts	14,000	,,
Table-cloths	13,000	,,
Napkins	16,000	,,
Paper-hangings	25,000	,,
Sail-cloth	200,000	,,
	968,000	

A comparison of the above figures with those of the total exports from St. Petersburg helps us to form an estimate of the quantity and kind of goods sent to that city for internal distribution.

Taking the year 1802, we find that all the Baltic ports received for Russia foreign linens to the value of 169,713 roubles, and in the same year exported the following.

VALUE OF RUSSIAN LINENS.

Sail-cloth	to value of	...	670,175	roubles.
Flemish Linen	,, ,,	...	745,472	,,
Ravenducks	,, ,,	...	1,544,218	,,
Coarse and fine Linen	,, ,,	...	247,217	,,
Flaxen Calimancoes	,, ,,	...	119,488	,,
Chest Covers and printed Linen	,, ,,	...	5,331	,,
Table-cloths and Napkins	,, ,,	...	113,728	,,
			3,445,629	

In addition were exported ropes and cordage to the value of 582,847 roubles.

To revert for a moment to the subject of the internal trade of Russia, it is well to remind the reader that Moscow was, naturally, the great distributing centre of home manufactures, so that any estimate made of the distributions of linens from St. Petersburg can represent but a small portion of the home consumption. All the interior commerce of the Empire practically united at Moscow. An estimate has been made by Tooke of the internal, compared with external, trade.

Regarding the products with which we are interested. At the close of the eighteenth century, when Russia had a population of about 30,000,000 souls, the value of the total production of hemp, flax, linens, hemp oil, linseed oil, and tobacco may be taken as 30,000,000 roubles, and every year from this there was exported in hemp, flax, and all articles prepared from them to the value of 10,000,000 roubles. The odd inclusion of tobacco in the above list of home products very inappreciably alters the total. Up till the time of Peter the Great, who greatly enjoyed his pipe, smoking was held to be a sin in Russia, and the clergy looked very grave when Peter granted a monopoly for the importation of tobacco in 1698. The culture of tobacco began in Russia in 1763. Although Tooke does not give figures for the actual quantity cultivated, he remarks that—" According to the customs of the country, tobacco is not one of the general necessities of the lower classes of the Russian people." There is evidence of a fair import of tobacco into Russia, which in itself would keep down the cultivation. In 1803, the import amounted to 2,752 poods, with 103,612 pipes.

Riga is a Baltic port of old renown, having been founded about the middle of the twelfth century, and was of considerable importance when Peter the Great added it to the Russian Empire. After that time its importance increased, and at the end of the eighteenth century was second only to St. Petersburg. Owing to its geographical position, Riga tapped the rich lands of Vitebsk, Livonia, Pskow, and adjacent governments, where hemp and flax were grown in abundance. In these districts there was practically no linen manufacture, except what might have existed for domestic use, so that Riga's export returns contain no manufactured goods of any value. Hemp from Vitebsk was usually brought down by small boats on the two little rivers Bella and Poretsch, falling into the Dwina, and thence to Riga. Flax was brought in the same manner, but a good deal also by sledge in winter. The qualities of the flax and hemp from Riga were always held in higher estimation than from any other quarter of the Baltic. This arose from the greater attention paid to the brack—that is, the sorting of the material and dividing it according to quality—and also from the fact that the provinces from whence these articles came were more fertile, and consequently produced a better quality. The hemp and flax, when brought down, passed the brack; the former was assorted as follows:—

Rein, or clean,
Drujana,
Outshot,
Drujana Polish Pass,
Pass,
Drujana Codilla, and
Codilla, which came chiefly from Lithuania and Courland.

The flax was considered finer, cleaner, and of better quality than from any other Baltic port, and consisted of the following denominations:—

Rakitzer, a general name in Riga for the finer sorts, derived its name from Rakischeka, a district in Lithuania, from whence all the fine flax formerly came.

Drujana Rakitzer came from the district of Drujana.

Tiesenhausen Rakitzer took its name from a family who formerly sent down flax; it was picked from the flax which came from the Duchy of Lithuania.

Marienburg Clean or Crown, from a remote part of Livonia and from the estates of Marienburg and Marienhausen.

Marienburg Cutt was the outcast of the above in bracking.

Badstub Paternoster was the outcast of Lithuania and Rakitzer.

Drujana Cutt, the refuse of Drujana Rakitzer.

Risten Three Band, the refuse of Drujana Cutt.

Hoffs Three Band was the best Livonian three band.

The Crown or best kinds remained in their original binding of about 25 lbs. each bundle, but that cast out was bound over again in bundles of about 10 lbs. each, and when packed for shipping was made up in bales of about a quarter of a ton. The flax-seed shipped at Riga was of superior quality, and much used for sowing, Holland taking large quantities each year. This seed came mostly from Livonia, Courland, and parts of Lithuania in autumn, before the shipping season closed, being the growth of the same year. What remained over was called "Over-sowing linseed," because it lay over the winter. This was used for crushing. The following list of the number of ships which arrived at Riga during different periods of the eighteenth century, and up to 1804, gives an indication of the increasing importance of the port:—

Years.	Ships.
1703	292
1709	225
1712	76
1720	188
1730	414
1740	597
1750	447
1760	622
1770	597
1780	889
1790	729
1791	796
1792	856
1793	897
1794	898
1795	704

Years.	Ships.
1796	1,032
1797	846
1798	913
1799	920
1800	867
1801	1,006
1802	1,128
1803	1,180
1804	1,147

The following were the nationalities of the ships which arrived in 1803:—

Russian	88
English	311
Prussian	143
Mecklenburg	63
Bremen	13
Danish	187
Swedish	249
Lübeck	40
Münster	56
Dutch	15
Hamburg	12
Portuguese	2
French	1
	1,180

The following tables give the weight in poods, or ship-pounds, of the flax and hemp exported from Riga during different periods, first to all places, second to Great Britain and Ireland, third to France, fourth to the various ports in the United Kingdom in 1803, and fifth to all countries in 1804. The weights for heavy goods went by ship-pounds, lispounds, and pounds. Twenty pounds equal a lispound, and twenty lispounds a ship-pound. The weight at Riga was calculated about nine per cent. lighter than the English weight. One sixth ship-pound was about a ton, or 2,466 pounds Riga, making at nine per cent. 2,262 pounds English.

TOTAL IN QUANTITY OF HEMP AND FLAX EXPORTED FROM RIGA TO ALL PLACES IN THE FOLLOWING YEARS.

		1790	1791	1792	1793	1794	1795	1796	1797	1798	1799	1800	1801	1802	1803
Hemp, Rein	Sh.lb.	72,332	54,303	59,221	50,210	68,199	61,423	62,051	48,268	68,252	61,708	53,318	96,430	61,414	75,417
Do. Outshot	do.	2,286	2,061	4,222	5,998	9,121	7,831	12,498	7,142	14,470	11,142	8,000	12,549	9,397	6.161
Do. Pass	do.	9,107	11,801	14,834	18,847	16,443	13,027	13,587	12,535	15,520	20,247	14,700	20,211	13,920	13,493
Do. Codille	do.	21,549	12,438	16,141	13,561	23,029	19,462	22,648	21,755	27,559	26,470	26,218	22,588	27,150	17,497
Flax, 1st sort	do.	37,097	55,578	51,584	40,426	39,909	34,642	45,326	53,719	50,526	54,441	52,300	36,508	34,138	50,516
Do. 2nd do.	do.	6,444	19,199	13,595	11,559	20,448	7,495	11,276	7,994	11,286	11,195	13,979	10,321	8,410	6,321
Do. 3rd do.	do.	1,658	4,090	3,174	3,429	4,766	3,137	3,048	2,204	3,018	3,726	2,417	2,613	3,670	2,017
Do. Codille	do.	492	773	1,137	530	834	987	697	548	678	1,065	956	928	1,859	1,011

EXPORTED FROM RIGA TO GREAT BRITAIN AND IRELAND IN THE FOLLOWING YEARS.

		1790	1791	1792	1793	1794	1795	1796	1797	1798	1799	1800	1801	1802	1803
Hemp, Rein	Sh.lb.	33,500	19,896	26,325	26,280	35,897	43,095	41,374	25,947	38,681	41,685	36,587	62,147	15,217	47,430
Do. Outshot	do	1,426	1,212	2,271	4,287	4,746	4,851	9,451	3,459	9,711	8,169	5,684	7,955	1,431	4,010
Do. Pass	do.	4,127	5,877	9,134	11,643	8,913	7,695	8,721	4,343	9,997	14,993	10.839	10,054	5,421	9,346
Do. Codille	do.	4,062	2,527	2,332	1,514	3,939	7,167	12,060	5,552	8,475	11,232	7,352	8,436	8,996	10,536
Flax, 1st sort	do.	19,719	26,911	25,026	21,911	17,843	19.615	21,259	17,643	25,142	39,610	33,805	15,603	15,446	28,657
Do. 2nd do.	do.	749	5,963	3.159	2,483	5,972	2,012	2,849	514	5,763	7,677	6,480	3,583	2,943	2,558
Do. 3rd do.	do.	130	682	316	1,320	1,081	1,093	859	1	1,369	3,032	1,140	916	1,413	1,087
Tow ..	do.	8	—	27	—	1	9	1	10	276	302	58	354	1,320	507

EXPORTED FROM RIGA TO FRANCE.

		1790	1791	1792	1801	1802	1803	1804
Hemp, Clean ..	Poods ..	2,392	882	342	1,352	11,306	1,375	6,770
Do. Outshot ..	do. ..	75	5	96	943	2,967	—	—
Do. Pass	do. ..	740	8	70	387	1,735	—	437
Do. Codille ..	do. ..	2,102	3	—	618	1,514	—	221
Flax, 1st Sort ..	do. ..	70	9	—	18	192	—	—
Do. 2nd Sort ..	do. ..	6	22	—	—	84	—	—
Do. 3rd Sort ..	do. ..	1	4	—	—	—	—	—

EXPORTED FROM RIGA TO GREAT BRITAIN IN 1803.

	No. of shps	HEMP								FLAX							
		1st Sort		2nd Sort		3rd Sort		Codille		1st Sort		2nd Sort		3rd Sort		Tow	
		Ship Lb.	L. Lb.	Ship Lb.	L. Lb.	Ship Lb.	L. Lb.	Ship Lb.	L. Lb.	Ship Lb.	L. Lb.	Ship Lb.	L. Lb.	Ship Lb.	L. Lb.	Ship Lb.	L. Lb.
London ..	111	25,037	15½	897	14	2,197	½	2,328	17	3,662	16½	11	2¼	—	—	—	—
Aberdeen ..	6	1,392	3½	72	10½	181	17½	426	11	1,668	2¼	30	13¼	—	—	—	—
Arbroath ..	12	121	1½	33	18	757	6½	104	9	2,563	13½	245	14	82	9½	25	½
Belfast ..	2	—	—	249	7	—	—	62	4½	58	2¾	30	5¼	—	—	—	—
Berwick ..	2	16	7½	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Borrowstoness	1	13	1½	—	—	7	19	—	—	88	5½	—	—	—	—	—	—
Boston ..	2	264	10	28	1	59	—	31	15½	102	18½	6	14	5	17¼	30	15½
Bristol ..	1	12	19	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chatham ..	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chester ..	3	580	9½	60	2½	37	1	—	—	807	4¼	—	—	—	—	—	—
Cork ..	1	295	11½	—	—	—	—	30	2½	—	—	—	—	—	—	30	9¾
Dover ..	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dublin ..	5	642	1	—	—	99	4	702	2½	—	—	—	—	—	—	—	—
Dundee ..	21	2,024	13	295	15½	1,668	1½	883	2½	3,810	5¼	623	12½	282	8¾	12	4½
Fisherow ..	1	31	9½	—	—	—	—	—	—	—	—	6	11½	—	—	—	—
Grangemouth	2	38	7	—	—	17	18½	9	7½	1	4¾	—	—	—	—	—	—
Hull ..	37	5,291	6	1,016	—	2,344	7	2,508	—	5,859	8½	448	1	275	8¼	211	14¾
Jersey ..	1	92	16	—	—	—	—	—	—	—	—	—	—	—	—	—	—

EXPORTED FROM RIGA TO GREAT BRITAIN IN 1803.– *Continued.*

	No of ships	HEMP								FLAX							
		1st Sort		2nd Sort		3rd Sort		Codille		1st Sort		2nd Sort		3rd Sort		Tow	
		Ship Lb	L Lb	Ship Lb	L Lb	Ship Lb	L Lb	Ship Lb	L Lb	Ship Lb	L Lb	Ship Lb	L Lb	Ship Lb	L Lb	Ship Lb.	L Lb
Kirkcaldy ..	2	181	7½	15	13½	3	17		-	1,019	7½	82	5	60	4¼	—	—
Leith ..	20	2,840	19½	58	18½	153	½	792	13	1,479	1¼	32	19¼	—	—	—	—
Liverpool ..	30	2,827	10	815	4½	319	5½	1,041	12½	804	2¾	213	8½	140	3	29	11¼
Londonderry	3	19	16½	9	11	—	—	—	—	—	—	—	—	—	—	—	—
Montrose ..	13	424	18	67	8	711	2	206	15	4,165	3½	248	9½	5	17¾	167	4¼
Newcastle ..	15	4,032	18	130	2½	293	19½	543	4½	1,560	4½	76	10½	—	—	—	—
Perth ..	1	26	3½	—	—	—	—	2	19½	—	—	—	—	—	—	—	—
Plymouth ..	3	29	17	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Portsmouth ..	4	34	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Stockton ..	2	191	13	—	—	62	2½	—	8	456	8½	40	17¼	—	—	—	—
Wells ..	1	180	18½	—	—	—	—	42	6	—	—	—	—	—	—	—	—
Whitehaven	2	—	—	60	4	—	—	7	15½	195	12¼	233	10½	176	19½	—	—
Whitby ..	3	697	18½	—	—	159	16½	380	10	276	1	81	6	—	—	—	—
Woolwich ..	2	—	—	—	—	—	—	252	—	—	—	—	—	—	—	—	—
River Weir ..	1	118	3	122	16	90	3	—	17½	72	10½	146	6½	58	11¾	—	—
Yarmouth ..	1	31	16½	67	3	183	15½	179	—	—	—	—	—	—	—	—	—

A LIST OF HEMP, FLAX, AND SEED EXPORTED FROM RIGA, IN 1804, TO ALL COUNTRIES.

To	Rein and Drujana Hemp	Outshot ditto	Pass ditto	Codille	Rakitzer and clean Marienburg Flax	Cut Paternoster and Hoffs 3-Band ditto	Risten & Livonia 3-Band ditto	Flax Tow	Sowing Linseed	Crushing ditto	Hemp-seed
	sh. lb.	sh.lb.	sh. lb.	sh lb.	sh. lb.	sh. lb.	sh.lb.	sh.lb.	Brlls.	Brlls.	Brlls.
England ..	51,517	3.703	9,855	4.145	34,889	8,975	1,951	364	23.320	38,106	130
Holland ..	658	135	643	1,969	65	5	—	6	12,012	92,777	15.959
France ..	6,770	—	437	221	—	—	—	—	3.975	11,882	—
Spain ..	2,452	463	265	85	17,035	2.459	295	7	—	—	—
Portugal	3.967	1.372	1,135	247	3.706	1.356	566	4	—	—	—
Italy ..	—	—	—	—	623	1,095	12	—	—	—	—
Sweden ..	5.433	884	355	227	1.534	622	92	171	2,031	1,088	228
Denmark	6,079	1.597	2,524	4.708	3.104	2,206	301	616	1,385	2,021	202
Hamburg and Bremen	—	—	60	—	11	59	—	—	2,602	118	—
Prussia ..	1.540	765	1,623	1.763	49	7	—	—	12,806	13.810	1 954
Lübeck and Rostock	522	118	377	2,687	697	696	14	12	9.763	—	77
TOTAL ..	78,938	9,037	17,274	16052	61,713	17,480	3.231	1,180	67,894	159802	18,550

Of the other ports on the Baltic we find Pernau exporting in the year 1804—

Flax	to the value of	...	547,044 roubles.
Flax Codilla	,, ,,	...	8,000 ,,
Hemp	,, ,,	...	27,000 ,,
Sail-cloth	,, ,,	...	260 ,,

Libau, in 1803, exported the following :—

Flax of the best sort	...	35 poods	18 lbs.
,, ,, second best	...	190 ,,	34 ,,
,, ,, third sort	...	130,506 ,,	11 ,,
Hemp of the third sort	...	32,976 ,,	4 ,,

There are 40 Russian lbs. in a pood.

The following quantities of flax-seed for sowing were also exported :—

To Bremen ...	5,257 Barrels.	To Holland ...	100 Barrels.
,, England ...	24 ,,	,, England ...	24 ,,
,, Sweden ...	28 ,,	,, Lübeck ...	409 ,,
,, Lübeck ...	102 ,,	,, Stettin ...	1,460 ,,
The above in the Spring.		The above in the Autumn.	

Archangel's trade was fairly considerable. From this port was shipped the produce and manufacture of the Governments of Viatka and Vologda, as well as those of the Archangel Government. From the two former Governments goods were brought down by the various rivers which fall into the Dwina, called sometimes the Northern Dwina, to distinguish it from the river flowing past Riga and known in Russia as the Duna. The goods were brought down on floats of timber, prams, and other roughly constructed vessels, covered on the top, all of which were afterwards broken up and sold, like those at St. Petersburg. The vessels, when floated or sailed down the river, lay near an island about an English mile from Archangel, where they were ordered alongside the export ships to discharge. The building of St. Petersburg for a time depressed the trade of Archangel by taking a considerable portion of the trade away ; still, it has progressed since. The following table of the imports and exports taken at various years, from 1724 to 1804, is a record of the progress.

ACCOUNT OF IMPORTS AND EXPORTS TO AND FROM ARCHANGEL.

YEARS	SHIPS ARRIVED	SHIPS SAILED	IMPORTS	EXPORTS
1724	23	22	No account of these years in Customs Ho.	164,116
1725	23	24		110,076
1726	29	30	31,103	247,625
1727	45	48	137,841	384,337
1728	41	43	135,353	306,069
1729	24	28	144,769	330,012
1730	41	43	108,779	288,252
1735	60	60	106,153	388,688
1740	115	120	94,704	570,955
1741	96	102	157,581	576,145
1742	50	52	414,632	411,256
1743	54	56	281,324	309,769
1744	30	33	132,667	273,681
1747	30	31	76,927	230,161
1750	51	49	178,954	310,492
1755	48	48	100,889	351,255
1760	32	37	177,325	530,866
1765	70	82	306,216	694,232
1770	68	72	336,420	878,773
1771	144	146	256,482	1,446,079
1776	126	126	347,713	1,416,288
1780	131	143	321,398	1,474,592
1785	95	101	411,718	1,553,999
1786	133	137	533,517	1,661,833
1787	123	127	440,665	1,671,020
1788	132	121	540,565	1,687,111
1789	118	127	900,480	2,373,303
1790	102	104	923,141	1,844,414
1791	146	146	808,615	1,872,064
1792	146	147	980,651	2,335,834
1793	110	109	460,708	2,525,198
1794	202	207	676,388	2,411,846
1795	120	124	822,461	2,799,680
1796	162	165	581,643	4,088,607
1797	105	104	614,762	2,456,922
1798	131	—	646,892	2,521,425
1799	127	—	—	—
1800	147	—	—	—
1801	—	—	—	—
1802	225	—	546,882	4,492,836
1803	269	—	502,477	2,090,000
1804	115	—	388,474	1.072,129

On pages 522–24 we give some tables showing the export of flax, hemp, and linens from Archangel to all ports during a series of years. One of these gives the quantities exported to the United Kingdom during the same years, another shows the exports to France in 1802, and another to various ports in 1804.

Although Peter the Great clearly saw the commercial advantages Russia would derive by acquiring an entrance into the Mediterranean by way of the Black Sea, this object was never accomplished until the reign of Catherine II. In the year 1774 peace was concluded between Turkey and Russia, the latter power obtaining a complete navigation of the Black Sea, and by the Dardanelles into the Mediterranean, and had the sea of Azov ceded to her. In 1783, the Crimea was conquered, and in 1791, by the peace of Jassy, Russia secured other territories on the Black Sea. At this time there was no Odessa. This important city, now the fourth in the Russian Empire in point of population and commerce, was, so late as 1795, only a small collection of houses, having little or no regular trade. In that year, the first of its traffic, 35 small vessels arrived and 30 sailed—the customs amounted to only 4,360 roubles. In the following year 87 vessels arrived, and 63 sailed. The rapid rise of Odessa almost equalled that of St. Petersburg. The spot chosen for erecting the city was conveniently situated on a bay formed by the Black Sea, thirty miles from the mouth of the Dneister, and sixty from that of the Dneiper, both of which rivers tap a great tract of Russian territory. For the purpose of giving an outlet for flax, hemp, and linens, the Black Sea ports never came into serious competition with those on the Baltic. Except for delivering sail-cloth, ropes, and cordage to Marseilles and other Mediterranean ports, the Baltic was the more convenient outlet. It was found certainly that conveyance of produce down the Dneiper to the Black Sea was very much cheaper than dragging it up against the stream, to be conveyed to the Duna or Southern Dwina to Riga, but all the difficulties and expenses involved in this interior carriage was, comparatively speaking, nothing when compared with the freight, insurance, and charges round by the Mediterranean to Great Britain, France, Holland, etc.

Misunderstandings and difficulties with Turkey were a cause of constant menace to shipping, and this frequently made the Black Sea trade insecure, and consequently very casual. Other produce, therefore, than linen formed the increasing trade of the Black Sea;

TOTAL OF THE FLAX, HEMP, AND THEIR PRODUCTS EXPORTED FROM ARCHANGEL IN THE FOLLOWING YEARS.

ARTICLES		1795	1796	1797	1798	1799	1800	1801	1802	1803	1804
Ships		125	164	104	131	127	147	—	225	269	115
Hemp ..	Poods	16,157	27,533	29,719	30,549	47,661	46,141	50,357	35,558	26,260	28,032
Flax ..	Do.	16,179	18,661	12,289	6,852	14,349	15,280	13,418	28,569	31,248	13,486
Cordage..	Do.	22,226	39,303	49,140	34,107	26,414	35,912	—	20,321	6,859	3,832
Linseed ..	Chets.	53,625	76,946	35,963	32,261	34,515	81,083	52,780	76,538	35,234	48,003
Sail-cloth	Pieces	464	1,076	580	3,457	1,182	1,501	—	—	—	200
Ravend'ks	Do.	361	300	160	100	265	316	—	876	543	—
Flems ..	Do.	152	200	190	110	165	505	—	—	—	—
Diaper ..	Arshns.	108,813	171,379	187,584	141,414	80,952	189,814	—	58,676	2,556	12,290
Linen ..	Do.	155,253	—	300	—	31,952	—	—	—	481	—
Crash ..	Do.	39,434	—	58,578	10,057	10,007	—	—	—	—	—

FLAX, HEMP, AND THEIR PRODUCTS EXPORTED FROM ARCHANGEL TO GREAT BRITAIN AND IRELAND IN THE FOLLOWING YEARS.

ARTICLES	1795	1796	1797	1798	1799	1800	1801	1802	1803
Hemp ..	Poods 6,285	16,051	11,317	8,143	18,911	31,936	33,413	18,601	25,803
Flax ..	do. 6,443	6,245	634	6,852	13,890	11,949	8,826	23,075	18,067
Cordage ..	do. 3,376	—	—	440	550	72	—	—	209
Linseed Oil ..	do. —	808	—	—	—	—	—	—	—
Linseed ..	Chet. 19,547	23,823	7,105	11,234	2,724	49,252	40,297	53,810	20,291
Sail-cloth ..	Pieces 57	—	—	—	—	—	—	120	387
Ravenducks ..	do. 14	—	—	—	—	150	—	—	102
Flems ..	do. —	—	—	—	—	100	—	—	54
Crash ..	Arsheens 280	—	—	—	4,000	—	—	—	—
Diaper ..	do. 487	—	—	—	—	—	—	18,000	2,507
Linen ..	do. 982	—	—	—	—	—	—	—	481
Do. Printed	do. —	—	—	—	—	—	—	—	256

EXPORTED FROM ARCHANGEL TO FRANCE, 1802.

		HEMP	FLAX	SAIL-CLOTH	RAVEN-DUCK
		POODS	POODS	PIECES	PIECES
Bordeaux	4	1,000	100	60	100
Marseilles	2	278	—	—	—
Ships	6	1,278	100	60	100

PRINCIPAL EXPORTS FROM ARCHANGEL IN 1804

PORTS	LINSEED	HEMP	FLAX
	CHETS	POODS	POODS
London ..	25,551	10,283	3,343
Lisbon ..	—	70	2,756
Liverpool ..	980	1,251	608
Amsterdam ..	15,525	3,118	—
Bergen ..	—	259	—
Dordrecht ..	—	502	—
Emden ..	14	983	—
Hull ..	2,193	—	—
Rochester ..	3,140	—	—
Ayr ..	—	303	—
Cork ..	—	1,147	—
Copenhagen ..	—	318	204
Dundee ..	—	368	1,080
Leghorn ..	—	—	4,723
Antwerp ..	600	3,961	730
	48,003	22,563	13,444

grain was one, and oak timber and masts for ship-building. The masts could be drawn against current to the Baltic, but the heavy oak logs could not; and so when the Black Sea became navigable to Russia, the abundant and thick forests of oak on the banks of the Dneiper, and on those of the various rivers connected with it, became a source of considerable commerce. The following goods of Russian manufacture were exported from the Black Sea and Sea of Azov in 1802:—

Sail-cloth	to the value of	...	10,246	roubles.
Ravenducks	,, ,,	...	2,204	,,
Linen, fine and coarse	,, ,,	...	5,558	,,
Table-cloths and Napkins	,, ,,	..	1,173	,,
Printed Linen	,, ,,	...	19,582	,,
Ropes and Cordage	,, ,,	...	51,773	,,

We have already noted that there were not enough manufactures of linens in those provinces which Riga tapped to make that place a shipping port for these goods. But there is evidence that Lithuania was a yarn-spinning district. Oddy, in writing of Lithuania, classifies that country with Ermland in that respect. We have already seen, in the German section, the quantities of yarn spun for export in the Ermland. In both countries even the most feeble were able to spin yarn, the women and children assisted in every process of saving, pulling, watering, and dressing the flax, afterwards spinning and weaving, as might be seen in every cottage. The river Memel, or Niemen, as the Russian portion is called, flows to the town of Memel through those Lithuanian districts where yarn was largely spun and flax grown for export. Memel had not a safe navigation to the mouth of the river. The town is situated on the Courish Haff, and sand banks impeded the progress of vessels to the sea. Königsberg, with a safer mode of exit, derived all the advantages of the Memel by the canal from the left bank of that river before it falls into the Haff, so that Königsberg was able, in a great measure, to make use of the river Memel and divert traffic from Memel town and port. As the Russian flax and hemp arriving at Königsberg was weighed according to the standards in vogue in that town, we append these, with their equivalents, according to English standards:—

100 pounds Prussian = 105 lbs. English.
1 stone Prussian = 33 lbs. English.
10 stone equalled 1 ship-pound or 330 lbs. English.

1 Centner was 110 lbs. Prussian.
60 ship-pounds were reckoned one last.
66⅔ stones were equal to an English ton, in which they reckoned the measure of their ships.

The quantity of flax, hemp, and flax-seed brought down from Poland annually was estimated at—

3 to 4,000 lasts of flax-seed.
2,000 ,, of hemp.
3 to 400 ,, of flax.

A comparison of the above figures with those of the exports over a number of years, which are appended later, will show that Germany retained both hemp and flax for home consumption.

The following was the brack at Königsberg of the Russian flax and hemp passing through that town:—

Hemp was divided into the following sorts:—Rein or clean, the first sort, which was the best hemp, and which the Dutch chiefly took for making whale lines; Cut, Russian Chucken, Lithuanian Chucken, Pass and Tow.

Flax was divided as follows:—Rakitzer, crown and brack, Drujana, crown and brack, Olschauer, crown and brack, Podolia, crown and brack. These were all sold by the stone.

On pages 527–29 are given the official list of flax, hemp, and tow, and of seed and oil exported from Königsberg from 1795 to 1803 inclusive, and also a separate and more detailed list for 1804, and a list of quantities of hemp, flax, and tow exported to France, and Spain and Portugal, from 1795 to 1803 inclusive. We are inclined to think that the quantity of hemp given as exported in 1795 is, in Oddy's work, a misprint.

Regarding the export of Lithuanian yarns from Königsberg, we refer the reader to observations made when treating of the exports of Königsberg in German section, page 426, and Elbing, page 427.

The principal export of Memel was, and still is, timber, floated down the river from the Lithuanian forests. The estimated quantity of flax, hemp, and flax-seed brought down from Russia to Memel was as follows:—

Flax	...	120 to 150,000 stones.
Hemp	...	40 to 60,000 ,,
Flax-seed	...	2 to 2,500 lasts.

EXPORTATION FROM KÖNIGSBURG TO GREAT BRITAIN AND TO ALL OTHER PLACES AND THE TOTAL NUMBER OF SHIPS CLEARED OUT IN EACH YEAR.

Years		1795		1796		1797		1798		1799	
Ships Cleared Out		566		995		1,017		1,295		1,085	
		Gt. Brit. and Ireland	Including all places	Gt. Brit. and Ireland	Including all places	Gt. Brit. and Ireland	Including all places	Gt. Brit. and Ireland	Including all places	Gt. Brit. and Ireland	Including all places
Flax	Lasts	19	290	27	232	48	206	24	347	247	407
Hemp	do.	—	144,830	—	1,856	—	1,233	15	1,983	29	1,897
Hemp-seed ..	do.	—	324	—	80	—	278	—	619	5	893
Linseed for sowing	Bar.	—	830	—	2,459	—	1,685	—	1,890	200	1,327
Do. Crushing ..	Lasts	527	1,688	1,093	3,072	800	2,795	1,130	3,369	1,458	3,892
Oil, Hemp-seed ..	Casks	—	376	—	345	—	239	—	329	—	1,570
Tow	Lasts	—	360	5	424	—	37,356	11	534	2	362

EXPORTATION FROM KÖNIGSBURG TO GREAT BRITAIN AND TO ALL OTHER PLACES AND THE TOTAL NUMBER OF SHIPS CLEARED OUT IN EACH YEAR.—*Continued.*

Years		1800		1801		1802		1803	
Ships Cleared Out		684		920		1,398		—	
		Gt. Brit. and Ireland	Includ-ing all places	Gt. Brit. and Ireland	Includ-ing all places	Gt. Brit. and Ireland	Includ-ing all places	Gt. Brit. and Ireland	Includ-ing all places
Flax	Lasts	352	624	130	192	113	283	255	415
Hemp	do.	256	2,441	271	2,115	373	2,484	714	3,247
Hemp-seed ..	do	—	443	—	150	—	130	—	157
Linseed for sowing	Bar.	78	2,189	48	3,447	90	3,919	27	4 249
Do Crushing	Lasts	1,156	3,954	270	2,402	1,718	3.879	2,075	5,654
Oil, Hemp-seed ..	Casks	—	2,218	—	1,265	—	931	—	1,487
Tow	Lasts	—	381	—	653	63	563	75	545

LIST OF FLAX, HEMP, TOW, LINEN YARN, AND SEED EXPORTED FROM KÖNIGSBURG TO THE FOLLOWING PLACES IN THE YEAR 1804.

Denomination of Goods		To England	To Holland	To Spain and France	To Denmark and Norway	To Sweden	To Lübeck, Bremen & Hamburg	To Pomerania and Emden	To Dantzic and Elbing	TOTAL
Flax ..	Lasts	484	5	10	231	84	14	10	33	871
Hemp ..	Do.	112	442	—	19	80	3	1,685	451	2,792
Hemp-seed	Do.	—	57	—	3	—	—	—	1	61
Linseed, Sowing	Barrels	—	44	963	225	504	150	44	98	2,028
Linseed, Crushing	Lasts	1,958	2,852	26	76	4	—	84	—	5,000
Oil, Hemp-seed	Ohm.	—	—	—	119	52	—	3	225	399
Tow ..	Lasts	156	3	—	35	8	—	239	198	639
Yarn, Linen	Schocks	23,331	—	—	—	—	12	7	243	23,593

EXPORTED FROM KÖNIGSBURG TO FRANCE, SPAIN, AND PORTUGAL.

Years		1795	1796	1797	1798*	1799*	1800*	1801	1802	1803
Hemp	Lasts	—	827	—	48	—	—	752	298	—
Flax	Do.	—	—	72	—	10	97	—	—	—
Tow	Do.	—	32	—	—	—	—	110	10	—

Marked thus * denotes that exports to Portugal were in those years only.

The following are the prices of exportation from Memel, including shipping charges on board. The estimate was made in 1805.

	Florins.		£	s.	d.		£	s.	d.	
Flax, fine Rakitzer	15 to 16	Per stone of 33 lbs.	52	16	0	to	56	3	0	Per ton of 20 cwt.
Ordinary	13 to 14		46	2	0	to	49	10	0	
Best Memel 4-band	11 to 12		39	10	0	to	42	18	0	
N.B.	7 to 8		25	13	0	to	29	0	0	
Hemp, cleaned	14						49	0	0	
Russia Chucken	11						38	0	0	
Podolia & Lithuania	8						28	15	0	

		£	s.	d.	
Flax-seed, Crown sowing	24	£2	12	0	Per barrel.
Ordinary sowing	22	2	8	0	
Crushing uncleaned	18½	2	7	0	
Crushing cleaned	19½	2	10	0	

Exports from Memel are given as follows :—

Years	1797	1799	1801	1803	1804
Flax, stones	114,257	804	30,552	159,046	158,095
Hemp, lasts	6,490	55	4,168	11,250	41,557
Flax-seed, sowing, barrels	14,074	—	4,942	7,378	3,388
Flax-seed, crushing, lasts	1,677	1,237	690	1,863	2,269
Tow, lasts	487	3	268	285	135
Yarn, schocks	—	200	51	20	25

The large quantity of hemp given in the above export table is quite incompatible with the quantity estimated as having been brought down the river to Memel, and could not include hemp grown elsewhere than in Russia. We are inclined to believe that the unit is wrong, and should be ship-pounds, equivalent to ten Prussian stones, and not lasts. In a treatise on hemp, by Robert Wissett, dated 1808, the following appears: "The grand mart for it (hemp) as an article of commerce is Russia, where it is grown in large quantities, and of the best quality, in the southern and western provinces bordering upon Poland, which in the late partition of that kingdom have fallen to the share of Russia. The rivers of Poland which flow to the northward, and fall into the Baltic in the Prussian dominions, pass through some of the countries where hemp is cultivated, but as such countries belong to Russia, and she commands the course of the rivers, the whole of the hemp near the Baltic may, with propriety, be said to be in the power of that Government." The above remarks, though published in 1808, were written in 1803, about the time of which we write.

We have already given the exports of linens from Dantzic in German section, page 429. As we have already stated, it is not possible, from the Dantzic Customs House export returns, to determine what quantity of linens was of Prussian and what of Polish origin. Some linens shipped at Dantzic came even from Galicia.

Oddy states that very large quantities of coarse linens, of Polish manufacture, were exported from Dantzic. These were called hempen and flaxen headens, all regularly assorted thus:—

Best white hempen
Best brown ,,
Second best ,,
Best broad headen
Second best ,,
Best middling ,,
Second best middling headen
Best broad black
Broad low headen
Low headen
Crocus
Middling Crocus

and some others, making no less than sixteen different descriptions.

Purchases of linens were made from the Poles according to Dantzic ells; the sales and exportation were made according to the same measure.

We have already noted, in German section, that Dantzic, being a staple town, no transit business was permitted. The burghers of the city were the buyers of all goods brought in. When a burgher dealt with a Pole, he was allowed ten per cent. tare and ten per cent. overweight; on the other hand, the burgher, on selling or exporting the goods, allowed but six per cent. tare.

The following account shows the balance in favour of the burgher:

He delivered when he *sold*	200 lbs.	He received when he *bought*	200 lbs.
Allowed 6%	12 ,,	10% tare is allowed ...	20 ,,
And got paid for ...	188 ,,	Net	180 ,,
		10% overweight ...	18 ,,
		He paid for only ...	162 ,,

SCANDINAVIA

CHAPTER LIV.

Eastern Adventure

Geographically, Scandinavia consists of Sweden and Norway. Historically, Denmark is included, to which kingdom that of Norway was attached during the period of which we treat. In the but meagre account we are enabled to give of the Scandinavian linen trade, we will begin with Denmark and Norway. The first indication of commercial enterprise is found in records of the reign of Christian IV. (1588—1648), who established an East India Company in Denmark. The discovery of the Cape of Good Hope laid open this branch of commerce, which proved of such advantage to Holland that other maritime powers sought the same opportunities of wealth. In 1618, three ships of the New Company sailed for the Indies, escorted by three men-of-war. A tract of land was purchased on the coast of Coromandel, on which was afterwards built the town of Tranquebar, and the fortress of Dansbourg. This procured the Company an establishment in India, and trade continued for some time; but owing to insufficiency of the capital employed, a gradual decay of the enterprise set in, and the Company was compelled to abandon their charter to the King, in lieu of sums of money he had advanced. In the reign of Christian V. (1670—1699), a new society was established, bearing date 28th November, 1670. This corporation was even less successful than the first; the proprietors met with so many losses that they were obliged to give up their charter to the King in 1730. In 1732, a third

Society or Company was formed, which met with more success. This Company was accorded many valuable privileges. Its charter was limited to forty years, and during that time it enjoyed the exclusive privilege of trading from the Cape of Good Hope to China. All provisions intended for the East India ships were exempted from paying any duty. The proprietors were exempted from making use of stamped paper in contracts or other business relating to the East India trade. A particular clause was inserted in the charter by which it was enacted that neither the King himself, nor any other person of the royal family, notwithstanding their being proprietors, should in any way interfere in the election of the directors. The King reserved to himself no more right regarding the Government of Tranquebar and Dansbourg than that of confirming the governors of each. The Company was permitted to enter into such treaties with Asiatic powers as should seem conducive to their interests, having the King's promises to ratify all. In return for these favours, His Majesty demanded but one per cent. on all Indian or Chinese merchandise re-exported from Denmark to foreign ports, and two and a half per cent. on those consumed within the limits of his own dominions. The foregoing, which constitutes a very brief summary of the beginnings of Danish commercial enterprise, we have taken from a work, published in 1762, entitled *The Present State of Denmark*, comprising a series of letters written by a certain Monsieur Roger, and compiled from Danish public archives and other authentic materials. The dates, in some respects, do not quite correspond with those given by other authorities, but the discrepancies are of little moment. These trading operations had little or no connection with any Danish linen-manufacture. The Company purchased Baltic goods generally for transmission to the far East. Agriculture was anciently the chief industry of Denmark; little or no attempt at making goods of any kind existed prior to the reign of Frederick IV. (1699—1730), who is credited with the introduction of manufactures, and the continuance of these was fostered by his son, Christian VI. (1730—1746). The latter King created a Council of Commerce and General Economy, which was employed in examining and reporting to him every project that might tend to make his kingdoms more prosperous. Trade, manufacture, agriculture, of Denmark, of Norway, and of the Duchies of Schleswig and Holstein, and the Fisheries, were the five divisions of the labours of this Society, and were under the separate direction of as many noblemen, who presided by turns at the Board. The King also established a committee, or subordinate body, styled "The Directors of the General Magazine," composed of four principal commissioners, a cashier, and a storekeeper, with several clerks. It was at first intended that this Magazine should be provided with all sorts of necessary materials for manufacture, bought at first hand, and at the lowest price, to supply the artificers at prime cost, whose work the directors were ready to purchase, paying for it either in cash or in raw materials. In a few years the Magazine was filled with cloths and stuffs of every kind, but shop-keepers and retailers still continued to purchase their goods in foreign markets. It was only under the apprehension of a tax being levied on imported foreign merchandise, and of possible prohibition of import of such articles as were supplied through the Magazine, that the dealers were induced to enter into agreement with the directors to import only such goods as were not dealt with by the Magazine. This agreement provided for a money penalty for first and second infringements, and for a third, the offender was to be rendered incapable of further dealing. A certificate was to be granted by the directors when the goods demanded could not be furnished by them, but the articles of this agreement were not observed by the merchants; it, therefore, became necessary to take other measures.

In the year 1739, the King enforced, by edict, what was before a voluntary contract between the merchants and directors, and the duties on several foreign commodities were increased. The permission granted to the directors to sell their goods by retail was undoubtedly prejudicial to other traders, but there was no probability of disposing otherwise of home-made goods, while every shop was crammed with foreign manufactures. At last it was found advisable to forbid the sale of these latter. The traders and shop-keepers were ordered to deliver up to commissioners appointed for the purpose all woollen stuffs or cloths which came from foreign markets, and in return to receive goods of similar kinds from the Magazine. The foreign wares were sent abroad for the King's account, while the sale by retail of home-made goods was confined to the shop-keepers and retailers, and, by these means, compulsory sale of home-manufactured articles was established in the kingdoms. In the series of letters written by Monsieur Roger, from which the above account has been taken, there is scarcely any mention of the linen-manufacture. Woollen and silken stuffs were the chief manufactures spoken of—the only note of a linen-manufacture refers to the linens of Schleswig and Oldenburg, which always met with a good market. We may presume that the close proximity of these Duchies to Germany encouraged a linen-manufacture.

In Anderson's *History of Commerce*, there is mention of a fine linen-manufacture in Copenhagen. The linen industry of Denmark, so far as it existed, must have been largely of a domestic nature. That such an industry existed is evidenced by the fact that considerable quantities of both flax and hemp were exported from Russia into Denmark, possibly for spinning purposes. The prohibition of foreign manufactures does not appear to have affected linens, for we find that fair quantities of sail-cloth, Ravenducks, Flems, table-cloths, and napkins, as well as white and printed linens, were imported for home consumption. While woollen and silken goods were strictly prohibited, linen was evidently considered of minor importance, industrially and commercially. Wool was the textile staple, and was extensively used as a substitute for fabrics or other materials produced from flax or hemp.

CHAPTER LV.

Spinning in Iceland

The wool industry extended largely to the Faroe Islands, and to Iceland. We give here a passage from a work by Nelson Annandale (1905) on Iceland and the Faroes, in which is described the methods of spinning, which may be read in conjunction with the methods used in Montrose and described in Scottish section (page 304).

> " Until 1671, the spinning-wheel was unknown in the Faroes, and as late as the beginning of the nineteenth century it appears to have been rarely used in Iceland. In the year referred to, a somewhat rude type was introduced into the Faroes from Scotland, by a Danish nobleman, named Gabell; it is now found practically in every house, and is still known as ' Skotrak.' In it there is no distaff, or other contrivance for holding the unspun wool, which is held in the right hand of the operator, and no treadle for working the wheel. This measures two and a half or three feet in diameter, and is of simple construction, entirely of plain, unpainted wood. It is fixed in such a way as to permit of rotation, either to the wall of a room or to a wooden upright fixed to a bench. An endless cord passes over the wheel after being curved round a metal rod some four or five feet away. The rod is supported on a wooden stand, but also has a rotary movement; the stand is kept in position on a bench, either by means of heavy stones placed upon its two ends, or of an iron vice. The spinner stands beside the bench holding in her right hand a flock of wool, which is twisted round the rod at its free extremity at one side; with her left hand she turns the wheel, at the same time drawing out the flock with her right; as the yarn is formed it is rolled round the rod, producing a cone-shaped mass which can easily be removed, unwound, and wound up again in a ball. When this has been done, three balls are taken and the three strands are twisted together

> by hand, thus producing a single thread of wool. The Icelandic spinning-wheel of the present day is in all respects similar to the modern Scotch one, and many of these seen in the farms have been actually brought from Scotland, or from Denmark, for they can be bought readily in the big stores of Reykjavik. Spindles, however, are still employed, especially in the Faroes, the yarn produced by their aid being made from the outer wool of the sheep. No distaffs are used in the Faroes. I have not seen one in Iceland, though Henderson and other writers mention them. The spindle whorls are generally made of wood, and are either mushroom shaped or simple discs, flat above and below. Sometimes they are notched round the edge, and when (a thread of one colour having been formed) the spinner desires to commence another with different wool, the first is bent down over the edge of the whorl, in one of the notches, and twisted together with any of its wool which still remains unspun round the staff. The spindles vary very much in size, according to the use to which they are put, small ones being employed in making fine thread for sewing on buttons and the like, while the thick woollen ropes with which the sheep are sometimes tied up are made with whorls which measure at least three inches in diameter. In all the spinning I have seen there has been a metal hook, merely a piece of bent wire at the upper end of the staff, which very frequently projects for an inch or more above the whorl, but Landt says that in his day a notch cut in the wood itself served this purpose, as it still does in many Scandinavian spindles. Occasionally, at any rate in the Faroes, the whorl is made from the upper part of the thigh-bone of a cow or pony, this object having a natural shape very convenient for the purpose."

We are pleased to insert this very interesting description of the methods of spinning in Iceland and the Faroes. Although used for wool, the same principle could be adopted for flax or hemp, both of which fibres were imported into Iceland from Denmark by the Iceland Company. This company, whose charter was established in 1743, had the exclusive right of commerce between Denmark and Iceland. They were obliged to employ no ships other than those constructed at Copenhagen, and to deal entirely in the commodities and produce of the manufactures of the country. The Icelanders were not allowed to trade with foreigners. The proprietors paid the King 16,000 crowns for the exclusive privileges they enjoyed. Linen is mentioned as one of the chief exports to Iceland; so that if the foregoing regulations were strictly carried out, sufficient linen was woven in Denmark to supply Iceland.

CHAPTER LVI.

Conditions in Denmark

Copenhagen, from whence the Iceland traders set sail in the months of May and June, was in the nature of a free port, so that no tables can be given of its imports and exports. Oddy says: "The trade of Copenhagen consists chiefly in the transit of goods. The island of Zealand, in which it stands, produces nothing in sufficient quantity for exportation; all its produce is needed for its own consumption, and is scarcely sufficient for that. The export trade from Denmark is trifling, except to their own East and West India possessions, and that is chiefly in goods from other parts." It would be difficult, therefore, to determine whether the linens exported to Iceland were actually of Danish manufacture, or were imported in the usual manner into the free port of Copenhagen. As we have stated, both flax and hemp fibres were items of export to Iceland. These were ranked amongst the chief exports; so naturally we conclude that both these fibres were spun on the island, woven into cloth, and twisted into cordage and ropes. Denmark, being a large maritime power, would of necessity require quantities of sail-cloth and ropes. These and the material from which they were made would most naturally come from Russia. This latter country exported nearly 700,000 roubles' worth of sail-cloth annually, and about 600,000 roubles' value of ropes and cordage by the Baltic alone. The tables of export from Russian ports give usually the various items of export, but, less frequently, the ports of destination. We are, therefore, unable to furnish a complete list of the flax and hemp, and goods manufactured from these fibres, imported into Denmark.

In 1804, from St. Petersburg, Denmark received about 70,000 poods of hemp, 3,155 poods of flax, 20,845 of ropes and cordage, and 9,000 pieces of sail-cloth, and from Riga in the same year 15,000 ship-pounds of hemp, over 6,000 ship-pounds of flax and tow, 1,385 barrels of sowing flax-seed and 202 of hemp-seed. If we calculate 63 poods to a ton and six one-sixth Riga ship-pounds to a ton, we can see that the quantities are small for supplying the needs of the Danish navy, mercantile fleet, and the fishing fleet of Norway. We think we may assume that the above-mentioned goods found their destination in Denmark, and were not a portion of the transit trade of Copenhagen, in which case a fair amount of flax and hemp was woven, or made into cordage, and the fibres of both plants grown in Denmark. From the Dantzic returns of 1804, we find that 7,542 schocks of linen went to Denmark, probably Polish linen; this quantity multiplied by sixty will give the number of Dantzic ells, each ell being equal to 22½ inches, English. Some small linen manufactures are reported in Jutland, by Marshall, but only of coarse cloths for sheets, shirts, and other purposes among the lower ranks of the people. A considerable trade in foreign manufactured goods, especially linens, was encouraged by Denmark through the free port of Altona. This town lay on the river Elbe, close to Hamburg, and commanded the same inland navigation. It was constituted a free port with a design to steal the trade of Hamburg. The Senate of this latter town had laid certain restrictions on trade, which caused some discontent, and gave encouragement to Altona. An example which may be cited is the case of Silesian linens, on which a small duty was laid in Hamburg, thereby turning the commissions business in them over to Altona at once. Seeing their error, the Senate took the duty off, and gained part of their trade back, but by no means all; much of it remained with the rival town and continued slowly to increase. The King of Denmark had made Altona the staple of the Danish East India Company. A portion of the linen brought in would naturally find its way to the far East in Danish vessels, and Altona had the privilege of distributing the India goods into most parts of Germany, causing the Hamburgers to buy from Holland. One of the chief advantages to Denmark was the Holstein Canal, begun in 1777, and opened in 1784. On the Baltic side it commences at Holtenau, about three miles north of Kiel, passes through Rendsburg, from whence, by the river Eider, goods are conveyed to the North Sea near to Tonningen. This little place was scarcely known to the world until the blockade of the rivers Elbe and Weser, by which circumstance it sprang into great notoriety, when practically the trade of a great part of Europe passed through it. During the blockade, the bulk of the Baltic traffic passed through the canal, rendering Rendsburg one of the most important inland towns in Europe. The duties payable on passing through the canal were received at Holtenau, Rendsburg, and Tonningen, each having a separate rate. The duties paid at Rendsburg in passing through the canal, and rates of warehouse rents in case of being landed and stored in Rendsburg, were for those goods in which we are interested as follow :—

DUTIES IN PASSING THROUGH THE CANAL.				WAREHOUSE RENT PER MONTH IF LANDED AT RENDSBURG.		
Articles.	*Quantity.*	s.	d.	*Packages.*	s.	d.
Flax	per Sh. lb.	32	0	per Sh. lb.	1	0
Hemp	,, ,,	20	0	,, ,,	9	0
Linen, blue striped, in boxes	per rixdol	0	6	—	—	
Damask & Ticking	,, ,,	0	6	—	—	
Cambric, fine and common	per 24 ells	8	0	—	—	
Canvas	,, ,,	0	3	—	—	
Sail-cloth	per rixdol	1	0	—	—	
Flax yarn, of all kinds	,, ,,	0	6	per Sh. lb.	1	0
Flax-seed	per barrel	6	0	per barrel	0	6
Hemp-seed	,, ,,	4	0	,, ,,	0	6

The warehouse rent for hemp, in the above table, has evidently been placed in the wrong column, and should be pence not schillings. Danish money was used for payments; there were 16 schillings to a mark, and six marks in a rix-dollar, twelve pence to a schilling, and 148 schillings to a rix-dollar. It will be noted in the above table that no linen was landed at Rendsburg; all linens apparently passed through the canal and were distributed to their various destinations from Tonningen. These were Baltic goods from Russia, Germany, or Poland. The duties paid on passing the Sound formed a considerable branch of the Danish revenues. The payments were made in rix-dollars and stivers, six stivers to every specie rix-dollar. The following were the charges on flax, hemp, etc., and products from these fibres:—

	Rdl.	Sti.
Flax dressed, per ship-pound	0	36
Flax undressed, as Petersburg, Narva 12 heads, Marienburg, all fine sorts, Podolia, Rakitzer, and Paternoster, the four ship-pounds	1	0
Flax, coarse, half clean, Farken, Rassen, Courland, Prussia, Rassets, Memel, and Marienburg, the six ship-pounds ...	1	0
Flax-tow, the five ship-pounds	0	18
Hemp, the ship-pound	0	8
Hemp-tow, the ten ship-pounds	0	36
Linen, Calicoes, the 16 pieces	0	30
Linen, Flax, the 20 pieces	0	30
Linen, Holland, Silesia, and Westphalia, the four pieces ...	0	10
Linen, tow linen, crocus, Dantzic tow, the 40 pieces ...	–	–
Linen Hemp, black tow, the 80 pieces	0	30
Linen Canvas, the eight pieces	0	30
Linen Damask, the 12 pieces	0	30
Linen Drilling, the 20 pieces or 500 arshines	0	30
Linen, Petersburg, all sorts, 40 pieces or 2,000 arshines ...	0	30

Of the linen trade of Norway, we can speak with but little authority; small quantities of hemp and flax were received into Bergen from Russia. Of the purely domestic trade little is related. The men of Norway were largely engaged in forestry, fishing, and the mines. This left the women on the land, the cultivation of which was their chief occupation, and little time was available for spinning and weaving. The very moderate wants of Norway in respect of textiles were supplied by Denmark.

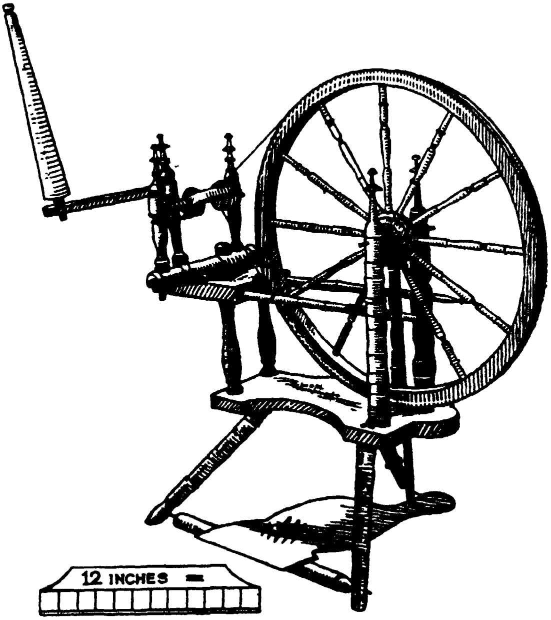


FIG. 60. SPINNING-WHEEL, VASSVANGEN, NORWAY.

In Scandinavia the spinning and weaving of linen was at no time an industry worth mentioning, and flax was hardly ever grown. Wool was the principal staple used, and linen goods were imported from Holland. The specimen of Norway wheel was, however, used for spinning linen yarn, as is evidenced by the distaff attached to it. In spinning wool, the fibre is combed into "slivers," and spun from the lap of the operator, no distaff being used.

In Denmark the wheels employed were of the Dutch type.

CHAPTER LVII.

A Negligible Linen Trade

To a great extent what has been said of Norway may be said of Sweden. There was considerable exportation of iron, wood, tar, and a moderate export of copper. These industries kept the men employed, and the women managed the farms. There was no inclination on the part of landowners to encourage spinning and weaving of textile; the proper cultivation of the land was more to their financial interest. Nevertheless a fairly prosperous industry in textile existed, principally of wool. The linen manufacture also had a share, even to the extent of some exports of Swedish-made goods. From the time of Gustavus Vasa, some attempts at trade and commerce were made in Sweden, and very gradually developed, although greatly interrupted by successive wars. The whole country, indeed, was left in pitiable condition at the conclusion of the war with Russia, after the death of Charles XII. We will quote here the words of Baron Mistler, an eminent Swede, who made the statements in the middle of the eighteenth century :—

> "Such a languor succeeded the war with Muscovy, that had not much attention been given to improvement, and a change in the constitution ensued, it would have taken at least a century to have recovered, and perhaps much more. Many of the wounds then received are not yet healed ; there are tracts of country in many of the provinces which once were well-peopled that

are at this day deserts, and the ravages of the Russians destroyed some valuable copper mines, which are not yet recovered. Within these twenty years much has been done to spread improvements, so that the country wears a fine face; but all this is not to be called a creation of new industry—much of it is only a renovation of that which was long ago enjoyed. The modern improvers who have pushed most of the advantageous laws which have been made of late years in favour of commerce, etc., had one principal aim, which was certainly very meritorious: it was to force the Swedes either to manufacture for themselves or go without the commodities formerly imported from abroad. Many laws were made with this view, the effect of these being, at last, an almost general prohibition of foreign fabrics. This was very well meant, but it was driving too fast, and has had some consequences of a complexion by no means agreeable. It is true that several manufactories were established in different parts of the kingdom to enable the people to perform for themselves, and some of them have succeeded well, but it is a business of much longer time to make a people a manufacturing nation. The attempt to do it at once was not only unsuccessful, but was attended with several evils to the whole kingdom. Sweden imported, it is true, large quantities of manufactures, but then she paid for all of them, or at least for much the greatest part, with the products of her soil, such as copper, iron, timber, ships, flax, hemp, pitch, tar, furs, skins, etc., so that the nobleman who dressed himself in French or English cloths, his wife who wore French and Italian silks, and who all expended their revenue in any foreign import, did, at the same time, encourage the lower classes of the people, and, indeed, assist the whole state by exporting the above products, in proportion to the goods so imported and worn. The legislature falsely imagined that foreigners could not do without the products they bought off Sweden and paid for with their manufactures. They supposed they would buy in the same proportion, and pay for them with money; but this was at best a delusion, for other nations knew their interest as well as the Swedes, and immediately transferred a vast portion of their trade to Norway and Russia, the consequence of which has been, that the copper and iron works in every province of the kingdom are discontinued for want of the old demand, and a great number of hands once employed in the timber trade have since stood still. That this representation has much truth in it appears from the fact that several articles of the prohibition have been taken off, which shows that the legislature themselves thought they had gone too far when they began to feel the ill effects of it in their private estates. But the act was done, and the mischief was irremediable; the trade was gone, so that partial revocation was of no use. This has made them redouble their activity in establishing manufactures, which may in time cause trade to recover from the blow received, but it must be a work of some years. Upon the whole, however, when we read in some modern treatises what great things are being done in encouraging all sorts of useful undertakings, we must remember that these are but efforts to regain lost ground. Trade now flourishes in Sweden, the people are very attentive to it, and some of the laws that have been made to encourage it have had good effect. The shipping belonging to the kingdom is much increased in the last thirty years, more commodities are exported in Swedish bottoms than formerly, which has in every respect proved a very advantageous thing to them. All their shipping and every article of naval stores are their own product, so that an increase of it is gaining one of the most advantageous markets in the world. Indeed, a very considerable article of trade with them is building ships for sale, in which articles the French and Dutch are the best purchasers. The former, it is well known, once bought a fleet of nine sail of men-of-war of the line from them at one time, and the Dutch are regular purchasers of merchant ships, but the chief increase of their ship-building has been for themselves, in consequence of an increase in their foreign trade, which, it is supposed, is now, in comparison with what it was thirty years ago, as five to three, tonnage reckoned. The establishment of the East India commerce has been of much consequence to them in this article of ship-building, and indeed to all the other branches of commerce in the kingdom, for East India goods were before bought with cash without bringing in any advantage by ship-building, or the employment of seamen, but now the Government has obliged the Company to export to the Indies a given quantity of Swedish manufactures, all of which exportation is clear profit, besides the advantages mentioned above. This establishment of an East India Company in Sweden evoked the criticism of all the trading part of Europe, who pronounced it a visionary scheme and one which could not possibly answer, but experience has now told them that nothing was less just than this condemnation, for the whole kingdom of Sweden is supplied by it, and there is in addition a considerable quantity of India goods exported to Poland, also some to Germany and to Russia—a state of affairs much more advantageous for Sweden than that of the time when they, themselves, bought their whole home consumption from the English and Dutch . . . . . Among the manufactures which they have been eager to establish, the principal is the woollen. They have, in coarse cloths, made some progress, and have begun to work some that are fine—an improvement which has been much owing to their gaining a better breed of sheep from England, which have been dispersed with much assiduity over most parts of the kingdom . . . . By means of Polish wool, mixed with the worst of their own, the

> Swedes make a tolerable coarse cloth, and the best they import from Poland, mixed with the best of their own, makes a finer cloth that sells well at home, and precludes the import of any but the finest of all, worn by the nobility and gentry of considerable fortunes. Their manufacture of the coarse sorts is so enlarged by degrees that they have for some years exported small quantities of it to Poland, which shows how far they have been able to carry their point. Besides these woollen fabrics, which are in a way of proving considerable enough to stop totally all importations, they have also established some of linen, but these are not yet advanced so far as the former. They make large quantities of a coarse sort which sells well among the common people, but all the higher classes of inhabitants use that which comes from England, Holland, and Germany. Preventing this importation is a favourite object with them at present, but the best judges of their trade think they will never be able to effect it."

The foregoing account of the Swedish trade is of interest, and, read in the light of statements of former lack of industrial movement, shows a considerable development, of which Baron Mistler might naturally be proud. The account is contained in Marshall's *Travels in Sweden*, which contains Marshall's own opinions of the textile trade, and these are not expressed in flattering terms.

Viewing the Swedish textile manufacture and comparing it with what was done in other and neighbouring countries, Russia and Prussia in particular, we cannot speak of it in words of commendation. As we have said, other and more lucrative occupations predominated. In examining Marshall's *Travels in Sweden*, we find very little account of the linen-trade; in a few instances landed proprietors are stated to have encouraged it to a small extent, to meet the local demand, on their estates, and to prevent the outgoing of money for the purchase of linen. These were no doubt commendable efforts, but cannot be construed in any manner to mean a linen manufacture.

Coming down to later times, we discover in Anderson's work a slight account of the Swedish linen manufacture in 1787. Anderson prefaces his remarks by saying: "The bulk of the Swedish commonalty subsist by agriculture, mining, grazing, hunting, and fishing. Their materials of traffic are the bulky and useful commodities of masts, beams, deal boards, and other sorts of timber for shipping." He mentions also flax and hemp, which would show that these fibres were grown in Sweden and exported: yet another proof of the lack of manufacture from these fibres. Anderson mentions manufactures of sail-cloth and linen and canvas, mostly made about Stockholm, where the royal arsenal and dockyards were situated, and evidently made for shipping purposes. Coming down to a still later period, we find in Oddy's work Gothenburg mentioned as the second staple town in Sweden. The ships belonging to the Swedish East India Company were fitted out at this port. Gothenburg imported many articles for exportation purposes. In 1804, there was exported from this town 12,378 ells of Swedish linen, and 10,662 ells of sail-duck—fifty-seven Swedish ells were equal to thirty-seven yards English. In the following years there was exported—

	Measure.	1783.	1789	1792.	1798.	1801.
Hemp,	Sh. lb.	675	181	610	5,194	10,626
Sail-Cloth,	Russian ells	29,795	—	30,360	—	64,414
,,	Swedish ,,	1,865	—	—	—	20,862

From Stockholm, in 1803, 4,770 ship-pounds of linen were exported, and in 1804, 18,733 ship-pounds: six ship-pounds may be reckoned as equal to an English ton. In 1804, 480 ship-pounds of cordage were exported. There were twenty-four staple towns in Sweden—of the other twenty-two we have no records of export of flax or hemp textiles. It might have been thought certain linen industry would exist in Swedish Pomerania. Stralsund, the capital, had its principal trade in the exportation of the produce of the duchy, and of the island of Rugen opposite. In 1805, King Gustavus Adolphus made an agreement with England, whereby British vessels were permitted to land produce at Stralsund for conveyance inland. This was during the war between France and Great Britain, when North Sea ports were closed. There is no mention of any textile or fibres from this port, but from Grypswald there is a record of the exportation of 1,273 stones of flax in the year 1780. The Isle of Rugen, it is stated by Oddy, was once famous for its linen manufacture. We are unable to report any trade in Finland in the linen manufacture; what there was must have been purely domestic. Fir, deals, pitch, and tar were the chief exports of Finland. Wood-sawing and manufactures of wood were the chief industries. Finland is to-day celebrated for its wood manufacture. The work on the modern Finnish spinning-wheel and reel gives evidence of this.

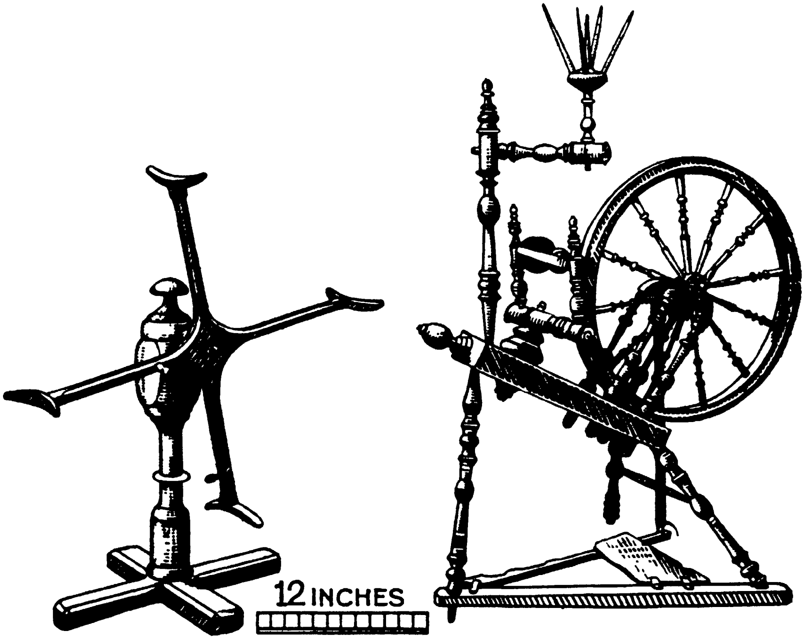


Fig. 61. Spinning-Wheel and Reel as used in the Communes of Koskis and Lampis, in the middle of Finland.

This wheel is mounted with a tow-fork, same as Fig. 50 (page 449) from Tyrol.

SPAIN & PORTUGAL

CHAPTER LVIII.

From Ancient to Modern

There is little to relate of a linen manufacture in either of these countries. The Phœnicians, in their peaceful trading, had penetrated into southern Spain before David ascended the throne of Israel. Along the coast of Andalusia they found a people possessed of abundance of gold, silver, iron, copper, lead, tin, etc.; so abundant indeed were the precious metals that the common utensils were made from them; so great was the quantity of silver that the ships were overloaded, and it is said that iron anchors were discarded and silver ones substituted to gain extra space. A land so abounding in wealth must have been over-run with traders, and one would expect to find in books or documents some record of manufactures, but apparently the fertility of the soil producing in plenty all the necessaries and many comforts of life, left little to be desired, and provided no incentive to intensive trading or manufacture. The Phœnicians early passed the Pillars of Hercules, in their time, and for many ages afterwards, esteemed by the Greeks as the utmost limit of the world, and, reaching the Atlantic, founded the still famous port of Cadiz, from whence, by the rivers Guadalquiver and Guadiana, they trafficked far into the interior.

At the beginning of the Christian era we find Spain a highly cultivated country, the southern coasts and part of Portugal occupied by peoples who were probably the descendants or mixed with the descendants of some of the ancient colonies of the Phœnicians. Cadiz had become the greatest emporium of the west. At A.D. 14, we find the first record of a linen manufacture in Spain; namely, at Tarragona, which was celebrated for its linens, "remarkable for their shining whiteness and the wonderful thinness of their fabric."

Spain developed several industries, amongst others that of woollens; but, under Roman rule, the people were obliged to give this up and send their raw material to the Romans, who probably put the manufacture into the hands of their own domestic slaves. Spain was rich in wool of a superior quality, so this industry naturally developed there. We can find no trace, at this period, of flax amongst the agricultural products, so it is probable that the manufacture of linen was limited. With the downfall of the Roman Empire and the advent of Gothic rule in Spain, little encouragement was given to industry.

At the beginning of the eighth century, the Moors invaded Spain, and were not finally expelled until after a lapse of nearly 800 years. During this period, Moors and Christians were almost continually at war, and no time or opportunity was given for the prosecution of trade or commerce. The Moors themselves were naturally more inclined to arts and sciences than the Spaniards, the descendants of the Goths; in fact many of the sciences lost to Europe during the Gothic period were re-introduced by the Moors, but these the Spaniards despised. There was, too, a false pride among the Spanish people which caused them to look upon trade or manufacture as somewhat degrading. Only in Catalonia does there seem to have been any activity in industry. We have already noted that Tarragona was, at an early date, celebrated for fine linens. The bulk of the Catalonian trade seems to have settled in later times at Barcelona, where the rulers, the Counts of Barcelona, paid considerable attention to the commercial interests of the people, and the country became prosperous and rich.

A commercial code was adopted admitting the commerce of all nations; this was ratified and confirmed by the Kings of Aragon, who succeeded the rulers of Catalonia. Thus, in the fourteenth century, Barcelona had become the chief trading port on the west coast of the Mediterranean. Under date 1264, it is noted in Anderson's *History of Commerce* that James I., King of Aragon, did all in his power to extend and improve the manufactures and commerce of his subjects, especially those of the citizens of Barcelona. He relieved them of certain taxes which the feudal lords had assumed the power to levy. At this date it is stated that the woollen manufactures of Catalonia were flourishing in Barcelona and other towns of the province. This industry, it would appear, continued, for we find in 1352 mariners from Catalonia coming to England to purchase wool, under the protection of King Edward. About this time a delicate woollen cloth or serge, called "Say," was made in Ireland to a considerable extent, and largely exported to Italy and elsewhere. The Catalonian manufacturers, accustomed to make the finest woollen goods, imitated this Irish cloth with great success. We find a note from a record still preserved in the archives of Barcelona that in 1438 a quantity of English wool arrived at Barcelona; namely, 250 sacks of about two hundred-weight each. This was distributed to the different manufacturers to be made into cloth and sent to England. The wool in question was of the finest grade, and the record helps us to see how far the manufacturers of Catalonia had progressed in the woollen industry. We introduce this account of the woollen manufacture to emphasise the fact that up to this period it seems to have been the important textile industry of Spain. Linen seems nowhere mentioned, except in the one early instance, until 1492, when amongst the many manufactures of Catalonia the products of flax are merely named.

The industries thus established, and some also in Toledo, principally of woollen and silk, received a rude check after the union of Castile and Aragon. Ferdinand of Aragon, having married Isabella of Castile, practically all Christian Spain was united. One of Ferdinand's first acts was to establish the tribunal of the Inquisition, which demanded that all the Jews in Spain should become Christians, or leave the kingdom in four months. It is said that, on a low estimate, 170,000 families, all industrious and valuable members of society, by whom a great part of the trade was conducted, were driven out to enrich other countries with their arts and industries. Granada, the last of the Moorish possessions in Spain, was conquered in 1492 by Ferdinand, and with the Moors there disappeared the excellent manufactories, especially of silk, established there. The country was further depopulated by emigration to the newly-acquired colonies, while the wealth accruing from the American mines induced a lazy pride. Thus Spain, at a time when she might have been a manufacturing country of importance, went backward in this respect, while other European countries were rapidly advancing. The history of the Hanseatic League is practically silent regarding any commerce with Spain. Only scanty records, and these of a vague description, have come down. It seems certain, however, that King John of Castile forbade the Hanseatics to have any intercourse with his kingdom. At other dates these restrictions were relaxed, notably in 1561, when the League obtained privileges from King Philip, but there seems no account of any trading. The above remarks occur in *The Hansa Towns*, by Helen Zimmern. Philip Thicknesse, who wrote the story of a journey through France and part of Spain, in 1778, speaking of the Spanish people, says: "They will not labour themselves nor would they allow Philip III. to bring strangers among them who would. Their *HONOUR* was too much at stake in that respect, and their pride withholds their own hands. They are all, in their own imagination, from the King to the cobbler, men of too high birth to stoop to the earth, unless to gather what she offers spontaneously." We have endeavoured so far to show that Spain never was anciently, in a true sense, a manufacturing country, and that practically no record of her linen industry may be looked for. The only modern record we have found is noted under the St. Petersburg export of 1804, in this volume, where we find that a considerable quantity of flax and hemp was sent to Spain. We may, with reason, assume that this material was worked into coarse goods by the peasants for their own use. The writer, when searching for a spinning-wheel in Spain, was told that only amongst the Basques of the Pyrenees could such be found; that there a remnant of a by-gone industry still persisted to some slight extent. We may take it for granted that this industry in the olden time had no great commercial significance. Spain depended for her linen consumption on imports, which will be dealt with later on. Portugal seems to have had a somewhat greater incentive towards industry. As early as 1147 there were important silk manufactories in Lisbon. The first note we have of a manufacture of linen in the country is contained in Anderson's *History*, which speaks of a little linen being made in 1732. In the same work, later on, under date 1781, it is stated that the Portuguese make a good deal of common linen and coarse kind of table linen for their own consumption. Russia exported fair quantities of flax to Portugal; some remnant of this home industry still exists. We were able, through the kindness of The O'Neill, in Lisbon, to procure a Portuguese spinning-wheel, here depicted. It will be noticed that the distaff is unconnected with the framework, and is carried in the breast or under the arm of the operator. The whole structure is very solid and, one would think, unnecessarily large and clumsy.

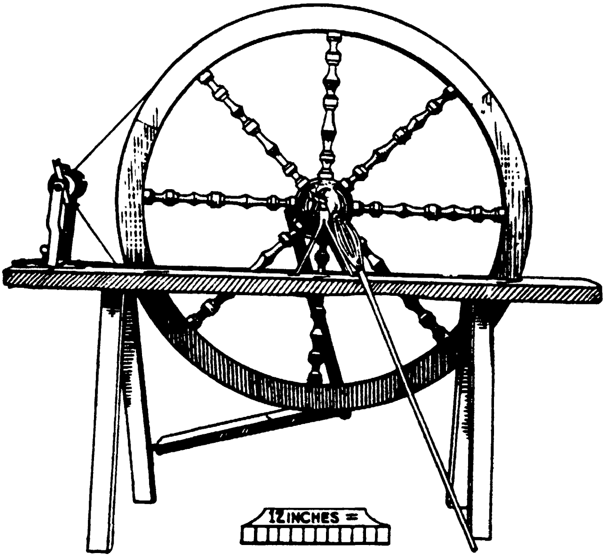


FIG. 62. SPINNING-WHEEL, WITH SEPARATE DISTAFF, PORTUGAL.

Spain and Portugal were never textile-manufacturing countries. Nearly all the linen used in the wheel-spinning days was imported from Germany and Holland, more recently from Ireland. It is a question if there was any particular type of spinning-wheel in these countries. A picture by Velasquez in the Madrid Art Gallery shows a wheel distinctly of the Picardy type. The specimen here represented is that of an exceedingly old wheel.

A work by Professor Link, of the University of Rostock, entitled *Travels in Portugal and Spain*, published in 1801, gives some slight indication of the linen industry in his time. In Alcobaça, he found manufactures of cambric and other fine linen. "The common people," he says, "have a great talent for fine, delicate work, and imitate with the greatest accuracy." The oldest of these industries was carried on in the monastery, and was there placed in order to turn that building to some account. Some linen was also manufactured in Figueira and in the surrounding country, and flax was grown round Coimbra. Around Braga there was considerable industrial activity—the women were everywhere seen knitting, sewing, or making linen. In many parts of the country, Professor Link noticed the fields blue with flax crops, so we may assume that the linen industry for domestic consumption in Portugal was fairly considerable. Spain and Portugal and their colonies were large consumers of linen goods, imported from other countries. This commerce was of much more importance than the home product of linens. It will, therefore, be of interest to make some note of the qualities and quantities imported into the Peninsula and exported from there to the colonies. Indeed, the traffic was so great that European linen-manufacturing countries competed for it,—the consumption of linens, especially in the Spanish possessions, being large, and the trade lucrative.

CHAPTER LIX.

The Great Trade of Cadiz

We will quote from a little work, written in 1790, by a certain C. S. Merchant, an Irishman, who had resided twenty-five years in Cadiz, in Spain, which city he describes as the Grand Magazine of most of the manufactured goods of Europe. His chief business there had to do with linen, of various kinds, consumed in Spain and her colonies, and which he imported chiefly from France, Flanders, and Germany. His object in writing the work was to induce his countrymen to cater more carefully for the Spanish trade, and also that of Portugal, and their respective possessions; consequently he goes into some detail regarding the qualities of linens suitable and the quantities imported. The various sorts of linens in greatest demand in Spain and Portugal, were Brittanias (broad and narrow), so called from the province of Brittany, in France, where they were made—a thin, but well-manufactured linen, the broad sort 35 to 36 inches wide, and the narrow about 27 inches. The cost of the broad was from 11d. to 22d., Irish currency, per yard, and that of the narrow 9d. to 18d.; one and the other were woven into long pieces, and after being well bleached were cut into remnants of 7⅛ yards each, then each remnant was made up in a square. The Spaniards and Portuguese preferred this linen to any other for shirting, because each piece or remnant contained what was necessary for two shirts, the most made up at a time. Brittania was a very durable linen, being made up of well-spun flax and not of tow. Much of it was sent to the West Indies; the remnants or pieces laid flat in a pile and laid in a heavy press and well screwed down, produced a bale more than one-third less than if composed of the same quantity in round pieces or bolts of twenty-four yards or so in length. Freight and duty were paid by measurement, so that about thirty per cent. was saved in this respect. This Brittania was largely imitated in Saxony and Silesia. The next sort of linen demanded both in Spain and Portugal was the Rouen sheeting, made in the province of Normandy, and imitated in several parts of Germany. It was of light quality, thin and indifferently bleached, its cost being from 10d. to 15d. per yard. Ghent white sheeting was the next. The Spaniards and Flemings called it Brabante Florété; it was manufactured in and about the city of Ghent, and was a strong, well-made linen, the best sheeting in the world, in breadth from 42 to 45 inches, the length of each half-piece 30 to 33 yards. It was generally well bleached, and its cost from 11d. to 18d. per yard. Ghent grey sheeting was equally demanded in Spain. "Creas," so called by the Spaniards, and by the French "Crees," broad and narrow, were much used in old Spain, especially the narrow width. They were made in Brittany, in the neighbourhood of Brest and Morlaix, and were imitated in Germany. These goods resembled dowlas, but were not so well bleached; the broad sort was about a yard wide and the narrow about three-quarters.

Cassarillos or Creajuelas, a grey linen resembling Osnaburgs, used by the people of Spain, and in the army for shirting, was made for the most part in Westphalia; it was about 27 inches wide and cost about 6d. per yard. It was largely shipped to the West Indies, but like all other coarse, unbleached linen, paid no duty or freight by measurement; they were shipped off in single bolts, and served to fill up odd spaces in the ships' sides or such places as could not accommodate a bale or box. Platillas Royals, a linen of indifferent quality, made in Saxony and Silesia, about three-quarters of a yard wide and well-bleached, was in much demand, both for Mexico and Peru. "Estopillas," so called in Germany and in Spain, same as lawns, the best sort being made in Saxony, and much required in Spain, St. Petersburg, and the West Indies. "Sangala," glazed and coloured linens made in Saxony and Silesia, were much in demand in Spain; the common colours were black, red, pink, scarlet, blue, brown, yellow, and orange. These were made in Switzerland, in the Republic of St. Gall.

From Cadiz, every third year, a Flota was despatched for Vera Cruz, in Mexico, composed of twelve to fourteen large register ships and of two men-of-war of the line. It commonly performed the voyage, out and home, in fourteen to eighteen months. All the ships of the Flota usually loaded, or contained by measurement, nearly ten thousand tons, English measure, of which, after deducting one third for various items, including coarse, unbleached linens, there remained six thousand tons for linens, woollens, and silks, and of this it was computed that four thousand tons were of linens, each ton moderately valued at £450 sterling. The author from whom we quote states that it may appear incredible that a ton of ordinary linen should amount to so great a sum, but it will be better conceived when we understand that freight and King's charges in Spain, for the West Indies, are paid by measurement, which obliges the exporter or shipper to make up his bales in the strongest presses, whereby he reduced them to the smallest possible size, in order to pay the less freight and duty, so that near eight thousand yards of linen, at a cost of 14d. a yard, should be contained in the measurement of one ton, which amounted to £450. Four thousand tons amount in value to £1,800,000, which was the consumption of the kingdom of Mexico for three years,

from which it will be seen that the annual consumption would be of value	£600,000
For the coast of the South Seas two or three large register ships departed annually about the month of January, whereof it was computed four hundred tons of cargo consisted of linens at the above estimate of £450, amounting to	£180,000
For Buenos Ayres and Carthagena three or four register ships (often more) departed annually from Cadiz, and would carry six hundred tons of linens at £450 per ton	£270,000
The "Campeche," "Honduras," "Camana," "Maracaybo" registers and Havannah Company's ships from Cadiz, as also the Quipuscoa Company ships from St. Sebastian, and the Canary register ships, all loaded about six hundred tons of linens, which, at £450 per ton, amounted in value to	£270,000
To which may be added the consumption in Old Spain ...	£1,000,000
	£2,320,000

Brought forward	£2,320,000
There remains to be added the consumption of Portugal and the Brazils, the Western Islands, Madeira, and coasts of Africa, which was computed to amount in value to	£464,000
	£2,784,000
To which may be added for freights, premiums of insurance, commissions and profits, 15 per cent. per annum, which will come to	£417,600
	£3,201,600

By this computation is shown what France, Flanders, and Germany enjoyed in their trading in linen goods to Spain and Portugal.

Russia also supplied considerable quantities of linens to both these countries, as is noted in the Russian section of this work. It seems surprising that Spain and Portugal, having at their command such vast markets for linens, should never have made any serious attempt to manufacture at home, but we may assume that agriculture absorbed the energies of a large portion of the peoples of these fertile countries, and allowance must also be made for a great amount of indolence and false pride.

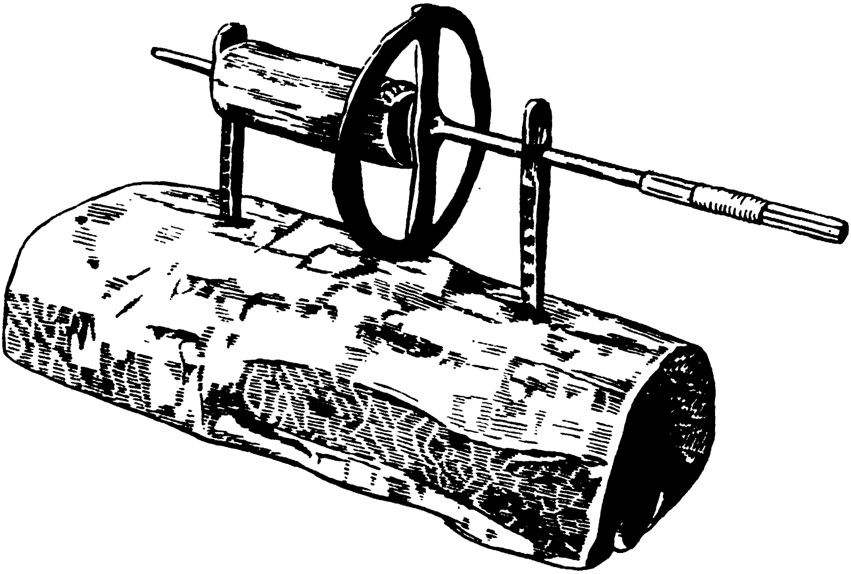


FIG. 63. SPINNING-WHEEL FROM TENERIFFE.

This wheel is unique, as no other form approaches its construction. It consists of an untrimmed block of wood measuring 16½ inches in length, which serves as a base, while the spindle, which is set in a couple of iron uprights, is revolved by rubbing with the palm of the hand the wooden pulley to the left of the fly-wheel, while the flax is fed by the other hand to the spindle.

ITALY

CHAPTER LX.

Work of the Guilds

In the palmy days of Rome linen was worn extensively, not of necessity manufactured at home. We have accounts of Rome's many dependencies supplying linen goods, much of it of fine quality. The wealth of the Roman citizens of nobility inclined them to lives of luxury, and costly wearing apparel figured largely in their items of expenditure. Regarding home-made goods, many of the Roman women were adepts at both spinning linen yarn and weaving it into cloth ; the men despised such occupations. An interesting account given in Warden's work (page 203) describes the use of the flax spindle and distaff in ancient Rome. There is no difference in this description from what may be said of Italy of to-day, especially in the South. Thirty years ago, or more, in villages in the neighbourhood of Naples, the writer has frequently seen the women plying the spindle as they chatted at their doors or in the market, and while walking about the streets. Under the shadow of some large modern spinning-mill this occupation still continues—the earliest known mode of spinning working side by side with the most modern. Odd spare time is occupied in this hand-spinning, which might otherwise be wasted, but within recent years it has greatly declined.

Wheel-spinning, except in one transitory instance, never existed in southern Italy. About fifty years ago a number of wheels were introduced into the province of Salerno, but the people refused to work them on account of the enforced sedentary occupation. The fibre spun in southern Italy is principally hemp, the yarn is woven into various goods for domestic use. Botanically the hemp and flax plants differ, but for utilitarian purposes there is little difference, and both fibres are prepared, spun, and woven in practically the same manner. In southern Italy hemp of especially fine texture is grown. After the fall of the Roman Empire, industries which produced anything in the way of luxury or even comfort were abandoned. The barbarian hordes which overran the country were unaccustomed to any extravagant indulgence; the barest necessities of life were sufficient for these hardy invaders. During the dark ages little has been recorded of the Italian linen trade. The deep, dark cloud which overshadowed the country obscured to a great extent any knowledge of an industry which indeed must have been greatly confined. When the Renaissance period arrived, we find, amongst other industries, that of linen enjoying the revival. In a valuable work entitled *The Guilds of Florence*, by Edgcumbe Staley, we gather certain information of the linen trade from the Renaissance time. The religious orders seem to have encouraged the growth of flax, every monastery on the plains of Italy having its flax patch, the monks helping the peasants to cultivate the plant. The religious manufactured the yarn, wove it into cloth, and instructed their neighbours in the mysteries of the craft. Linen was exclusively prescribed in the ritual of the mass, and for other functions. Staley describes the four processes of pulling the plant, rippling, retting (both dew and water retting), and scutching. The first three operations, as anciently practised, are in use to-day; in the fourth, viz., scutching, " the fibre of the flax was separated by hand from the wood or stalk and then passed between grooved wooden or iron rollers, which required very careful adjustment to avoid, on the one hand, matted skeins or lumps, and on the other, the too complete crushing of the flax, which resulted in a breakage of fibre and the production of the lint." This system of scutching reverses the method now employed. The flax straw is now first rolled and then the fibre separated from the straw by the scutching handle. The fibre used may have been hemp, and we can in this case understand the rolling process after the removal of the straw, for, on account of the harsh nature of hemp, it requires an amount of rolling to soften it before it becomes fit for spinning. This softening, in the olden days in Italy, was often produced by repeated beating with a heavy mallet.

The process of rolling described, as we have said, may refer to manipulating hemp fibre, as hemp was largely grown in Italy and spun into yarns; flax, if it were of a hard nature, may have been treated in a similar manner after the removal of the straw. If this were so, it is interesting to note that iron or wooden grooved or fluted rollers were in use for this purpose at this early period.

Staley takes note of the first mention of the Guild of Linen Manufacturers as being under date 1236. "Probably," he says, "it was the offspring of a humble association of flax growers and linen-yarn spinners." In 1340 there appeared a body of regulations and laws for the Guild of Linen Manufacturers. Between 1340 and 1350 the guild flourished exceedingly. Women, as well as men, were admitted to full privileges and duties. This was unlike the matriculation to other guilds, to which men only were admitted. In the instance of the Linen Guild we presume the admission of women was due to the fact that so many of the manipulations were conducted by women. The officers included two consuls, managers, agriculturalist members, and inspectors of flax beds. They inspected the seed, the soil, and the labour, and had other important duties. It is of interest to note that flax growers and linen manufacturers suffered from the existence of the middle-men or brokers. History has repeated itself at a much later period in many European countries.

Raw flax could only be supplied to the scutcher by the middlemen appointed by the consuls. The scutcher was prohibited from purchasing direct from the grower. Sales of linen came under a similar regulation. Breaches of these bye-laws were punished by fines. These brokers were unusually tenacious of their rights and fees. Every piece of linen required the official stamp of the Guild, and a label was attached which marked the length, width, and quality. Linens imported required the seal of the Custom House authorities, and only cloth so marked was permitted to be sold. Any retailer offering linen or yarn not so marked became liable to fine. Staley proceeds to relate the process of manufacture, which is essentially the same as that noticed in the introduction to this work. This simple process, worked in Egypt probably before history began, still prevails in Italy and elsewhere unchanged. An interesting item mentioned by Staley is that the whorls of stone or glazed terra-cotta were often the work of artistic persons, and that such great masters as Della Robbia did not disdain to mould, paint, and glaze whorls for such of their lady friends as desired to make their spinning implements ornamental. He states that many such objects are to be found in art collections, but unknowingly they have been described as "Terra-Cotta Beads." In Great Britain and Ireland, especially in the latter country, stone whorls were in use; the wooden spindles which they surrounded have long since decayed and vanished, leaving the imperishable stone whorls so often found. In some museum collections these are placed alongside neolithic implements without any distinctive labelling—their former use being unknown; the country people called them fairy grindstones or fairy rings. The quotation from Staley's work shows that the spinning of linen-yarn was a fashionable occupation among ladies of rank, as it has been in many countries. When spinning-wheels came into vogue, many tiny wheels, not much larger than a sewing-machine, and highly carved or otherwise decorated, were placed on a table. In France especially we have seen old illustrations of this pastime manufacture. Staley tells us that the Linen Guild continued to prosper and flourish until 1537, when a new order of things greatly altered and modified the character of the industry of Florence. This was introduced by the Medici. "The march of new ideas and the introduction of new methods sounded the death-knell of the old shopkeepers; one by one their shutters went up, and guild life became extinct." But for this very interesting account we would have been at a loss to describe any features of Italy's old linen industry. In 1560, when the city of Antwerp was at the zenith of its prosperity, according to Anderson, linen goods were exported to Italy from that city. Regarding Antwerp's commerce with Italy, it is stated that to Ancona large quantities of English and Netherland linens were sent. Bologna was also in receipt of linens. To Venice, Naples, and Sicily went great quantities from the Netherlands, the ships bringing back principally silken goods and raw silk. From these accounts we may conclude that Italy's linen industry had declined, the principal textile manufactured being silk, which was exported in return for linens.

CHAPTER LXI.

Eighteenth-Century Trade

Anderson gives a short description of the manufactures of Italy in 1787, from which we extract the following:—

SAVOY, PIEDMONT, AND SARDINIA.—In Piedmont there is mention of the growth of hemp, but nothing of its manufacture; the most advantageous production being silk, which was reckoned the very best in Italy. No mention of the growth of fibres or textile manufacture appears under Savoy and the island of Sardinia. In Lombardy great quantities of cloth and linen were manufactured and mostly used at home, but their fine silk stockings and handkerchiefs were usually exported. The Duchy of Mantua abounded in corn, flax, and fruits. Its general commerce in silk and other manufactures, formerly so considerable, was much decayed. Of the then three independent republics of Genoa, Venice, and Lucca, it is stated that Genoa made silken goods, such as fine velvets, plush, damasks, the raw silk coming from Sicily. In the Venetian republic the only linen manufacture appears to have been at Brechia, the linen manufactures of which were greatly esteemed. Crema was eminent for its fine thread manufacture. In the small republic of Lucca, on the Tuscan Sea, the city of Lucca contained many artisans and manufacturers, more especially in silk goods, in which Lucca carried on a very considerable trade. Coming to the Grand Duchy of Tuscany we find no mention whatever made of a linen manufacture; that which had existed during the time of the Florence Guilds had evidently subsided into one for domestic purposes—its greatest trade at the time we write of consisted in woollen and silk manufactures. That the peasants of Tuscany carried on a linen manufacture even into the wheel-spinning period is evidenced by the fact that wheels still exist there. The writer was enabled to procure two wheels and a reel from the Tuscan Apennines, representations of which are shown on pages 570 and 571, together with descriptive matter taken from the spinning-wheel catalogue of Belfast Municipal Art Gallery and Museum.

In records of the Papal States there is little mention of any manufacture excepting of silk, satin, and velvet, but a considerable trade in flax and hemp was carried on. In the dominions of the King of the Two Sicilies we find flax was grown in the kingdom of Naples, and great quantities of silk, of which much was exported. In the island of Sicily the commerce consisted chiefly in raw and worked silks for exportation.

The above accounts of linen manufactured in Italy during the eighteenth century clearly indicate that the industry was carried on purely for domestic purposes, the chief textile manufacture being that of silk. From Oddy's work of a somewhat later period we are enabled to give some account of linen goods imported into Italy. From Saxony and Bohemia came cloths of dowlas character, called in Italy *tele corame*. These were made in 7/4, and were chiefly imported into the northern parts of the country. Much of the Möbel linen mentioned in the German section was sent to Italy, where it was used for domestic purposes. The Weben linen made in Silesia, Saxony, and Bohemia was nearly all exported to Italy. Silesia also supplied striped and checked linens called *boutons*, which nearly all found their way to Italy. The Italians usually bought the striped sort; the stripes in this were interwoven with red Turkish yarn, and were used for curtains and bed-ticks. In Silesia, chiefly in Hirschberg, lawns were made called by the Italians *tela batista a bastori*; these were practically all designed for the Italian market.

Flowered damask and ticken made in Saxony were chiefly exported by way of Trieste to Italy. We are unfortunate in not having notes of the quantities of linens thus imported into Italy, but such details as we can give fully show that the manufacture of linens in Italy during the eighteenth century was on a very small scale indeed, and of a quality fitted only to supply the wants of the poorer classes, the imported linen of finer character supplying the needs of the richer.

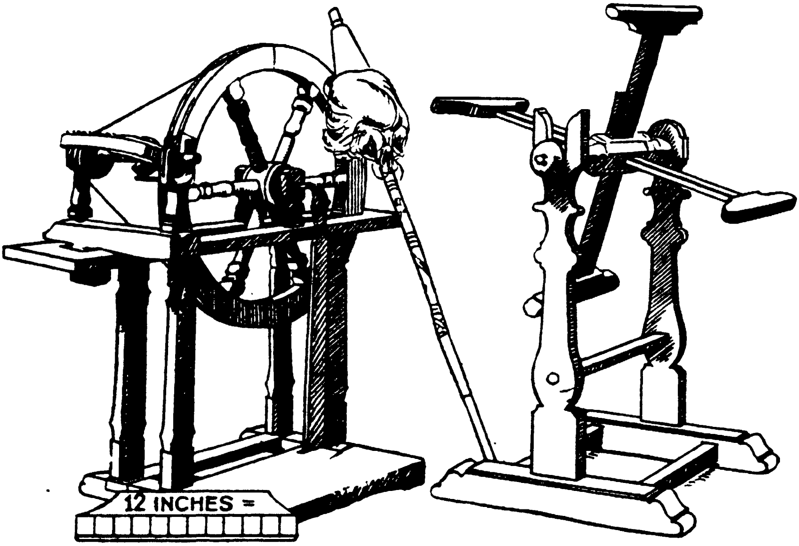


FIG. 64. SPINNING-WHEEL, SEPARATE DISTAFF, AND REEL, FROM BRUNTINA, LOMBARDY.

The wheel here follows the Tyrolese type. The distaff is used as with the Tuscan wheel (page 570), and the reel has no measuring arrangement.

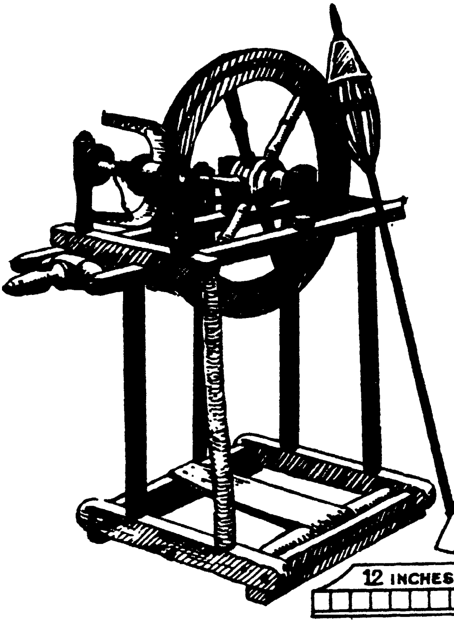


FIG. 65.
SPINNING-WHEEL AND DISTAFF,
TUSCAN APENNINES.

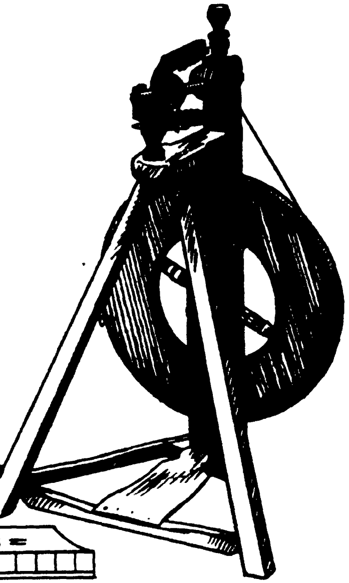


FIG. 66.
A FAULTY ATTEMPT AT MAKING A GERMAN
TYPE OF WHEEL, TUSCAN APENNINES.

Italy, except north of Rome, was never a wheel-spinning country; but in the northern districts, especially in Lombardy and Piedmont and in the mountain regions of Tuscany, wheel-spinning is still carried on extensively side by side with the more ancient distaff and spindle industry. None of the Italian wheels are of Italian design; they are simply copies, and very crude copies, indeed, of the Tyrolese wheels, except where a rough idea of the German type is attempted. This wheel (Fig. 65) shows a distinct Tyrolese type, but has no distaff attached to the wheel or on separate stand. The distaff used is exactly the same as that employed by the North Italian distaff and spindle spinner, and is placed in the belt or under the arm of the operator, as in the older method.

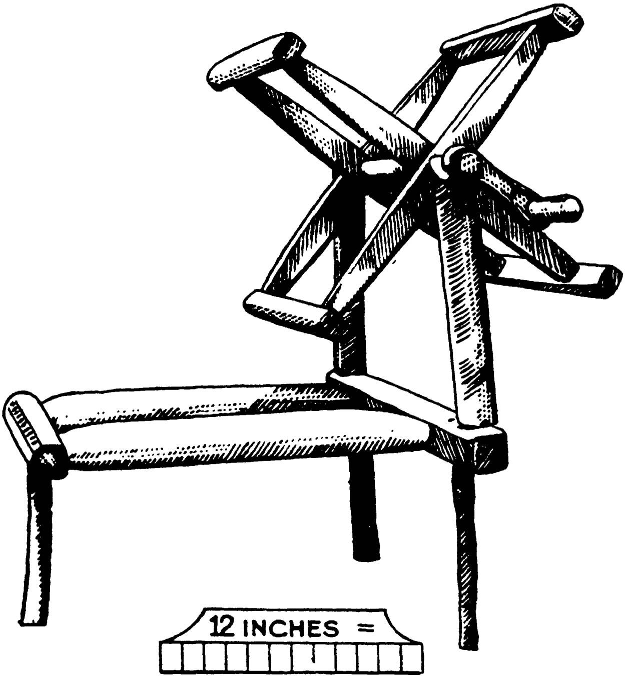


Fig. 67.

The reel in this Tuscan set is very crude and clumsy, and is devoid of any clockwork arrangement for measurement.

SWITZERLAND

CHAPTER LXII.

The Helvetic Society

During the winter months of 1853, owing to dryness and cold, and consequent dearth of water supply to the rivers, the lakes of Switzerland fell much below their usual level, thereby uncovering and revealing evidences of a long-vanished civilisation, hitherto undreamt of. The pile dwellings of the Swiss lakes appear to have existed in the ages of stone and bronze, and, to some extent, to have continued into the iron period. The many and varied implements and utensils discovered from time to time throw a clear light upon the manners and customs of the Swiss inhabitants of those far-away days.

Amongst the implements of manufacture are found many in connection with the linen industry. In some of the oldest settlements have been discovered fabrics plaited from a species of bast, the fibrous portion of the lime-tree sometimes mixed with flax fibre. These formed something akin to a coarse matting, which may have been used as a body covering. Keller, in his work on the lake-dwellings of Switzerland and other parts of Europe, devotes a chapter to the plaiting and weaving industry, which, with the numerous illustrations, shows very distinctly the methods of manufacture. The flax used was not the flax of commerce of to-day ; it was the Linum angustifolium—

the small-leaved, purple-flowered flax, a herbaceous, many-stemmed perennial plant, growing about a foot high, and indigenous all over Europe, especially about the Mediterranean. From early plaiting of untwisted flax fibres to linen cloth of the most complicated patterns, belonging to the same age as the implements of stone and bone, specimens have been unearthed from the mud of the lakes.

Not until 1762 did industrial life appear in the Switzerland we know. At that time a number of patriots formed themselves into a "Helvetic Society," which had for its object the creation of a feeling of mutual dependence amongst the people. The most famous men of French and German Switzerland joined this society, which gradually enlarged and did wonders in cultivating a Swiss national spirit. Swiss songs were composed and sung, a national literature was brought into existence, and education on a broader and better basis, from primary to University, was vigorously prosecuted. Amongst the practical results of the work of this organisation was a great increase in industry; manufactures of linen, cotton, woollen, and silk began to flourish. It may seem surprising that a country like Switzerland, hemmed in by other and greater states, and possessing no sea-board, with poor conveniences for internal transit,

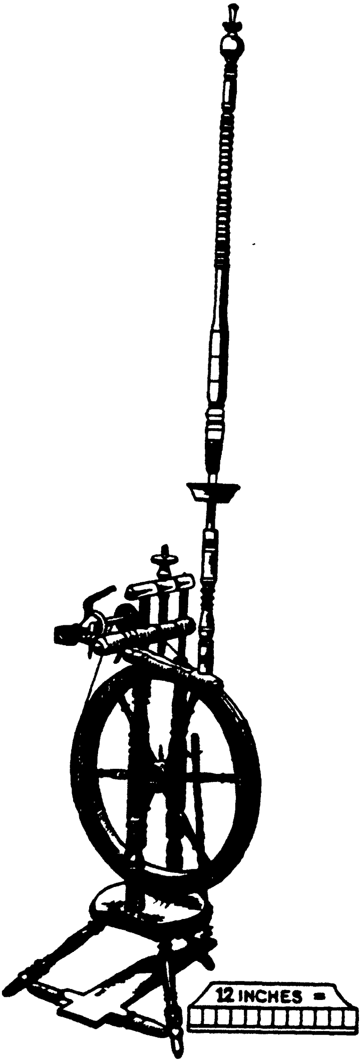


FIG. 68.
SPINNING-WHEEL FROM TEUFEN, IN THE CANTON OF APPENZELL.

should develop a not inconsiderable export trade in linens, and yet her goods found markets far and wide, and even competed successfully with those of Silesia and Saxony to the North Sea ports, finding their way from thence largely to England and to the North American continent, and by other routes supplying a great portion of the needs of Italy, Spain, and Portugal. The cantons of St. Gall and Appenzell were chiefly responsible for the linen manufacture. In the former, a linen named after the canton, "Sangalletens," was largely made; it was woven of raw yarn and afterwards bleached, and was mostly exported to Spain. This linen was very largely copied in Silesia. Lawns were also manufactured to a considerable extent, and found their way of export by Hamburg, in competition with the Silesian lawns. In the canton of Appenzell, according to Anderson, many thousand pieces of linen were manufactured, which were exported to France, Italy, Spain, and Germany. The linen generally made in Switzerland was of good and very strong quality. We are, unfortunately, devoid of much detail regarding this trade. Only in the northern cantons was there linen manufactured for export—a purely domestic industry was carried on elsewhere. Some of the flax was grown at home, but the great bulk was imported from Germany.

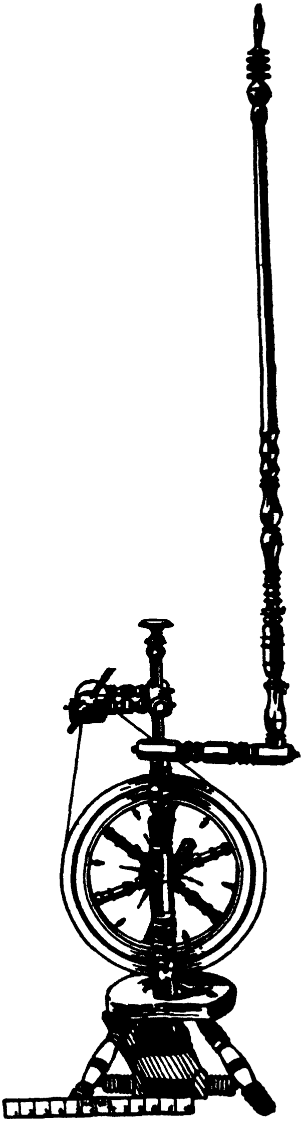


FIG. 69.
SPINNING-WHEEL FROM THE CANTON OF ST. GALL.

This wheel is purely Swiss in type, and was used throughout the cantons of Berne, Valais, Ticine, Lucerne, Unterwalden, and Grisons. From the latter canton it found its way into Tyrol, and is used to-day by the peasants in the Oetzthal in that Crown-land. It appears to be one of the best designed, and although light in appearance, one of the most substantial in the Belfast collection. It is mechanically well proportioned, and is a very true-running wheel.

Unlike the neighbouring Tyrol, Switzerland has practically ceased its wheel-spinning industry; indeed the industry was never at any time of importance except in the north, the arts of wood-carving, watch-making, etc., giving other employment to the people, and flax-growing has almost entirely ceased; only in the northern cantons there is still carried on a remnant of what was once an industry of some moment. In St. Gall, Thurgau, and Appenzell, the spinning-wheel is occasionally found at work: in these cantons the wheels are all of the German type.

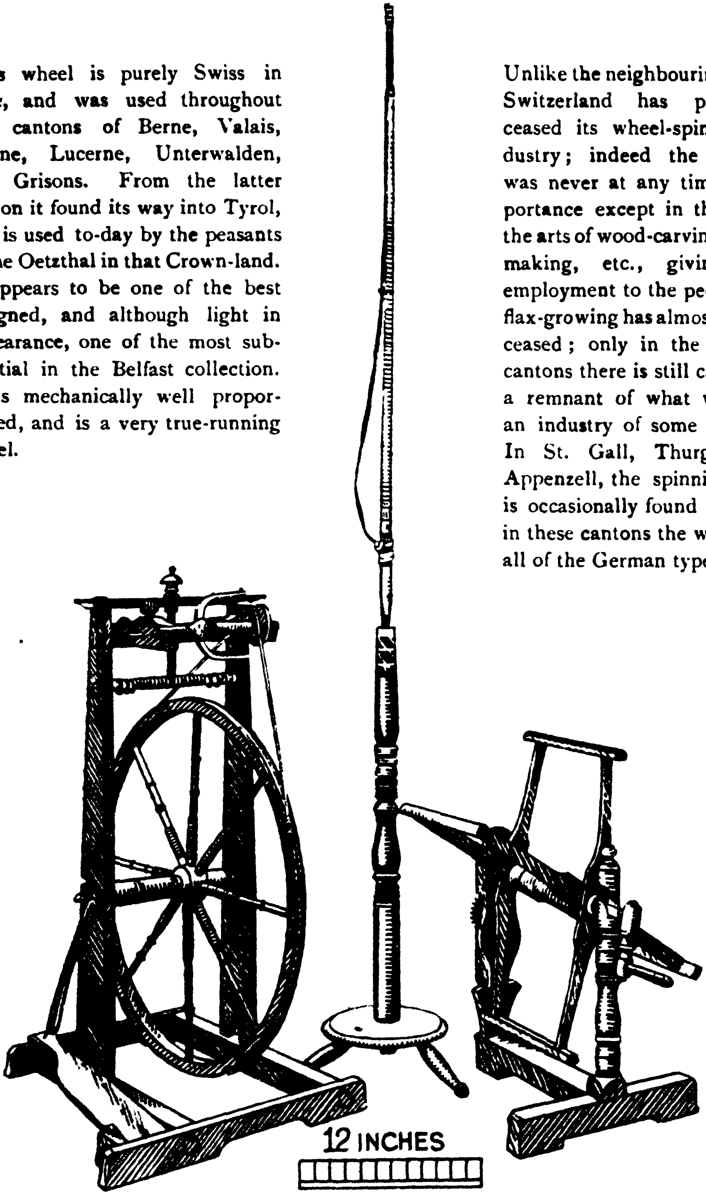


Fig. 70. Spinning-Wheel, Reel, and Jointed Distaff, Oberburg, Emmenthal, Canton Berne, Switzerland.

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